4grade

Understanding ARITHMETIC

4

McSWAIN · ULRICH · COOKE

Understanding Arithmetic 4

—Its Meaning and Use—

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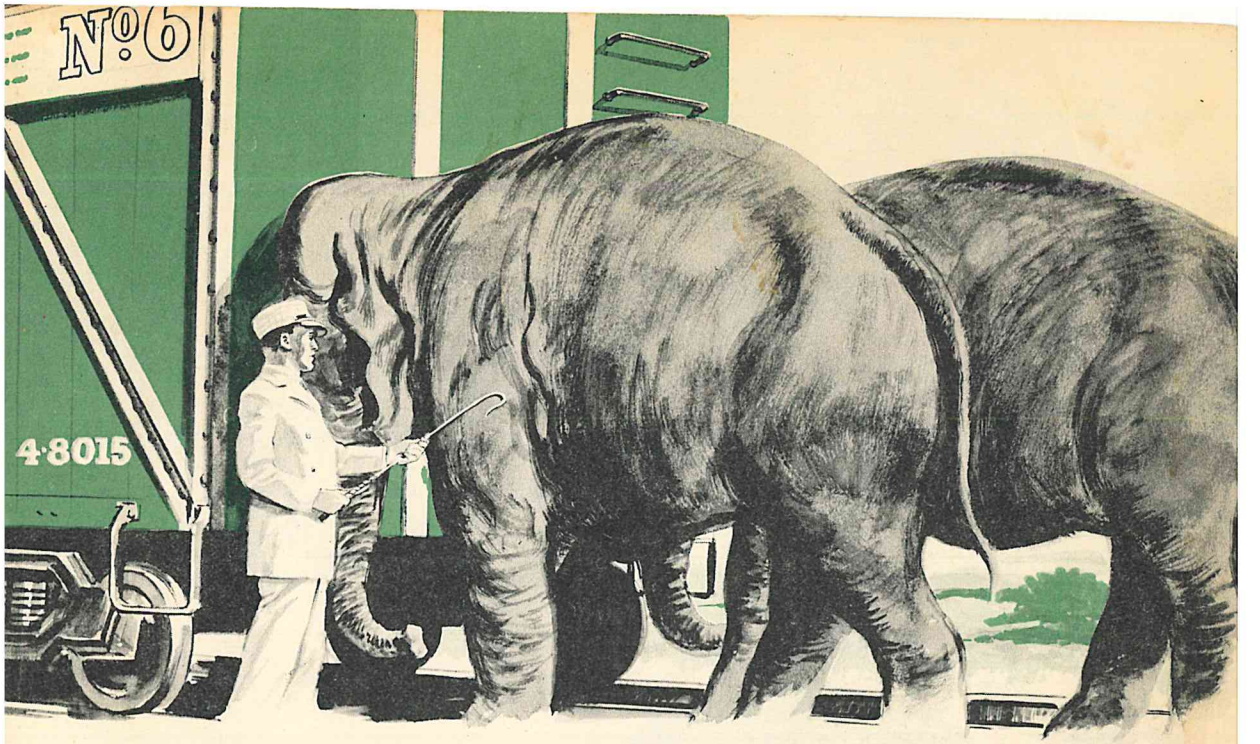

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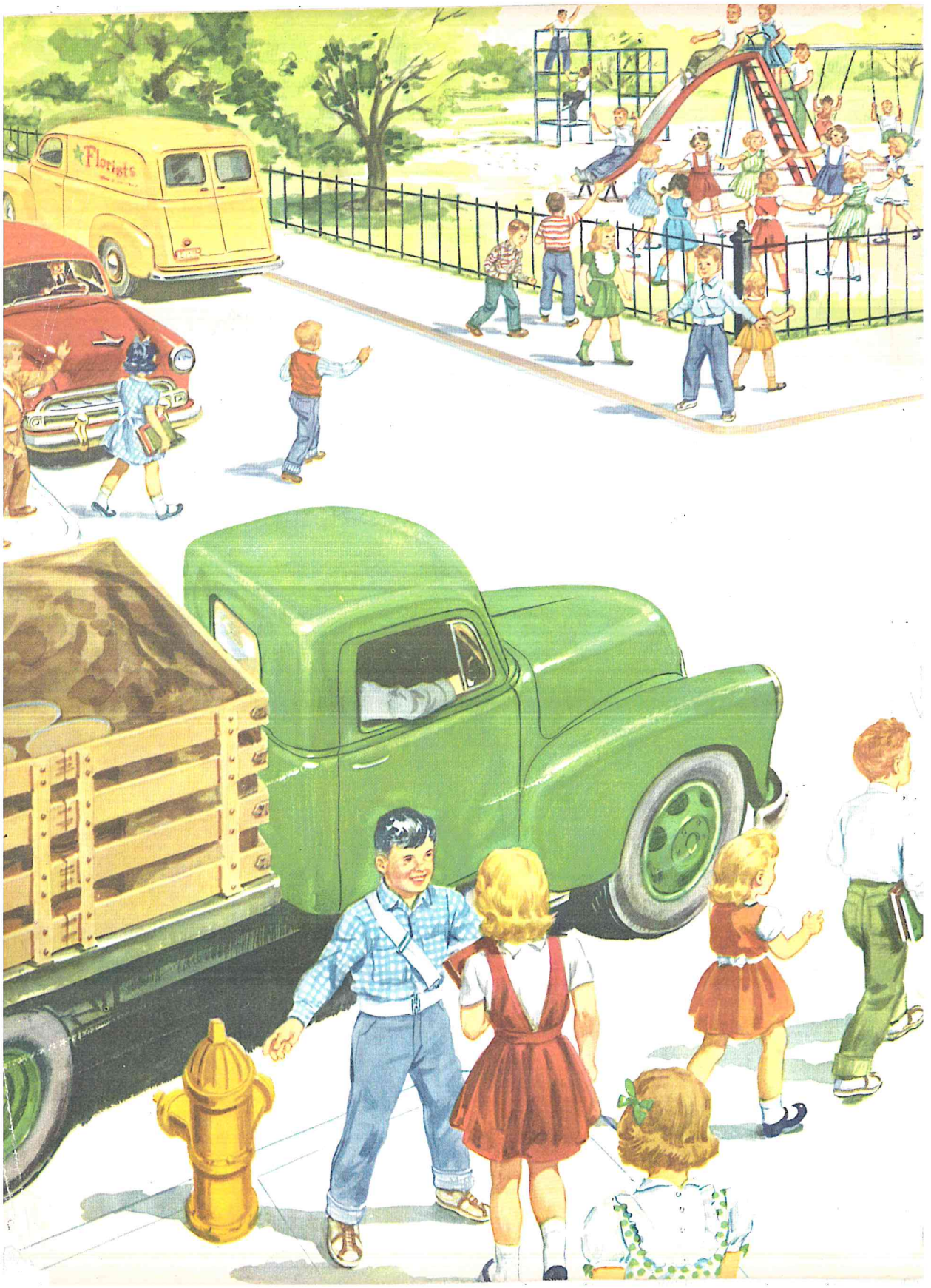
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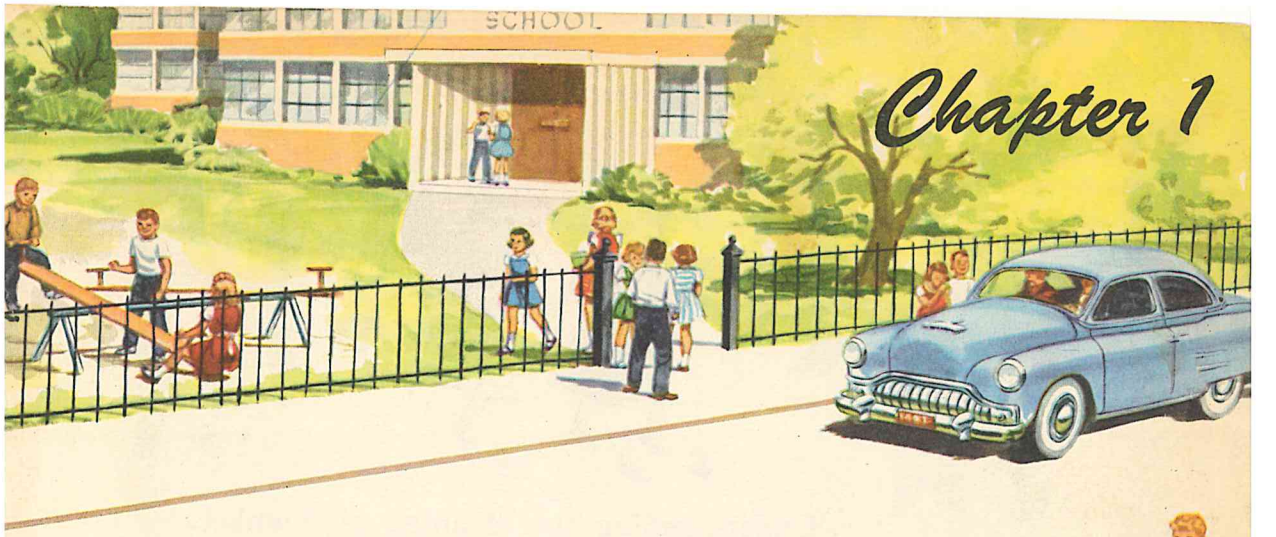


Chapter 1

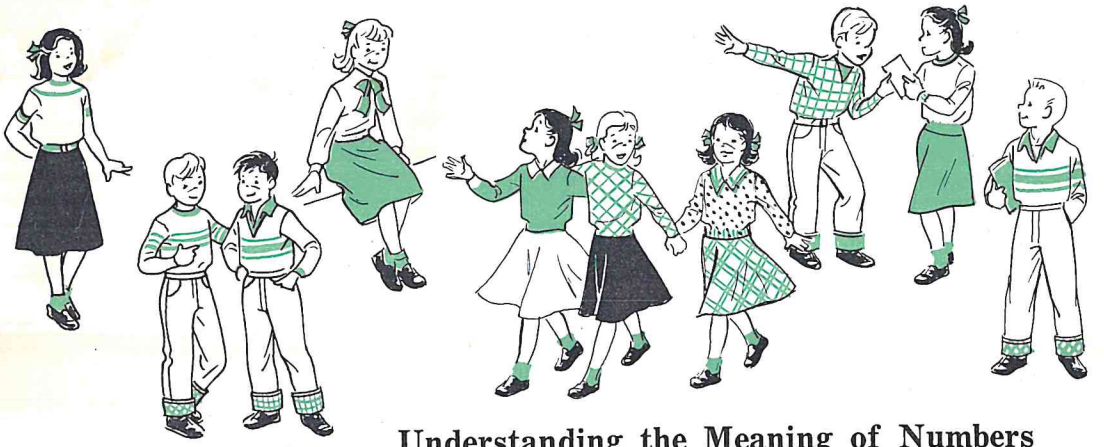
Using Numbers to Answer Questions

We use numbers to answer many questions. Use the pictures on pages 4 and 5 to help you answer the following questions.

1. How many patrol boys do you see at the street crossing?
2. How many cars are waiting for the children to cross?
3. How many children are waiting at one corner to cross?
4. How many children are crossing the street?
5. How many children are playing on the slide?
6. How many are on the seesaw?
7. How many children are in the circle?

Answer these questions by using numbers. If you don't know the exact answer, give one that you think is about right.

8. How tall are you?
9. When is your birthday?
10. How much do you weigh?
11. At what time does school start in the morning?



Understanding the Meaning of Numbers

1. How many children are there in the picture above? Without counting you cannot tell how many children there are, for you cannot think of so many separate things at once. But if you count, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, you know that there are ten, and you would write 10.

2. When we count, we change each group of ten ones to 1 ten, like this:

1 1 1 1 1 1 1 1 1 1 = 10 ones = 10

Tens	Ones
1	0

We count ten separate things. We write the number 10. The number 10 means 1 ten and 0 (*no*) ones, but we can also think of the number 10 as standing for ten separate things.

3. Sometimes we count more than ten things, like this:

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 = 15 ones = 15

Tens	Ones
1	5

We count fifteen things, and write the number 15. The number 15 means 1 ten and 5 ones, but we can also think of 1 ten and 5 ones as standing for fifteen separate things.

4. Tell what each of these numbers means: 11, 14, 27, 16, 39.

You will remember:

- You can think of the number 10 as standing for 1 ten and 0 ones, or as standing for ten separate ones.

Understanding Larger Numbers

All of our numbers are written by using one or more of these figures: 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0.

The number 8 is a *one-place* number. It means 8 *ones*.

The number 34 is a *two-place* number. It means 3 *tens* and 4 *ones*. It is read, *thirty-four*.

The number 657 is a *three-place* number. It means 6 *hundreds*, 5 *tens* and 7 *ones*. It is read, *six hundred fifty-seven*.

The number 2594 is a *four-place* number. It means 2 *thousands*, 5 *hundreds*, 9 *tens* and 4 *ones*. It is read, *two thousand, five hundred ninety-four*.

The number 1040 is also a *four-place* number. You know that *zero* (0) means *none*, or *not any*, so you can see that 1040 means 1 thousand, *no* hundreds, 4 tens and *no* ones. It is read, *one thousand forty*.

1. Read each number below and tell how many *ones*, *tens*, *hundreds* and *thousands* it stands for.

89 6031 465 9 2975 520 84

2. On your paper make a chart like the one at the right. On your chart write the numbers above. The first number, 89, has been put on the chart for you.

Thous.	Hunds.	Tens	Ones
		8	9

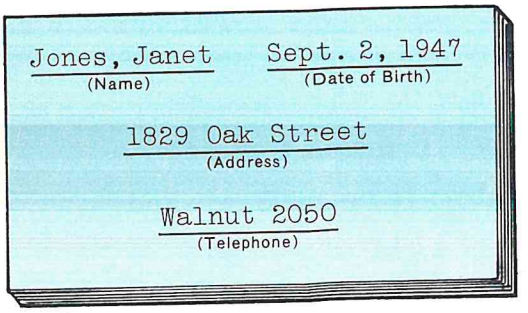
3. Use figures to write: Twelve, seven hundred twenty-four, eighty-nine, seven, two hundred, twenty, two thousand.

Now you have learned:

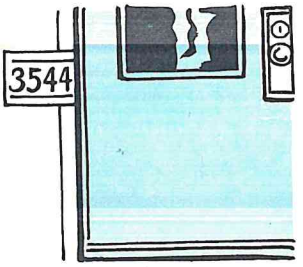
- Four-place numbers have a place for *thousands* as well as places for *ones*, *tens* and *hundreds*.

Reading Numbers in Other Ways

The school principal has an office record card for each pupil in the school. You could read Janet's card by saying Janet Jones was born September second, nineteen hundred forty-seven. She lives at eighteen twenty-nine Oak Street. Her telephone number is Walnut two oh five oh.



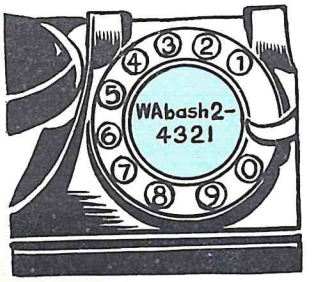
Dates are read by grouping thousands and hundreds together, and tens and ones together. For example, 1955 is read, *nineteen hundred fifty-five*, or *nineteen fifty-five*. 1607 is read, *sixteen hundred seven*, or *sixteen seven*.



1. Read each of these dates:

   1920 1861 1775 1959 1800 1090 1935

House numbers are read the same as the short way for dates. 3544 Maple Street is read: *Thirty-five forty-four Maple Street.* 186 Forest Avenue is read: *One eighty-six Forest Avenue.*



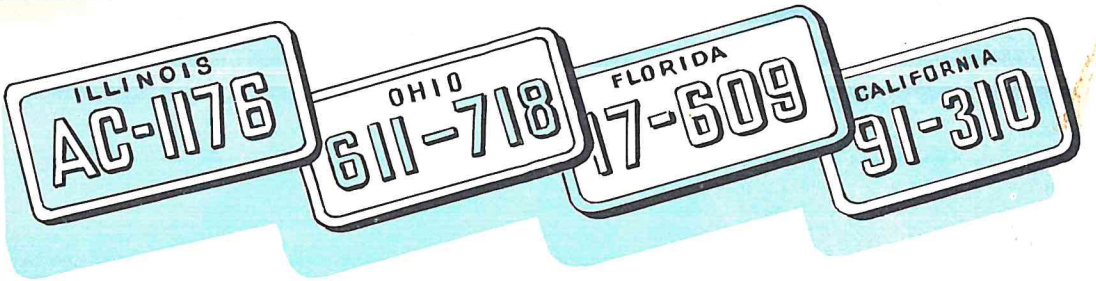
2. Read each of these house numbers:

   1809 Sheridan Avenue 425 First Street
   376 Main Street 4007 State Street

3. Read these telephone numbers:

   WAbash 2-4321 Webster 6907 Church 2000

4. Read these automobile license numbers:



Reading Money Numbers

The chart shows how much a person can save in a year if he saves the same amount of money each week during the year.

If you save $.10 each week, you will have $5.20 at the end of a year.

$.10 is read, *ten cents*. $5.20 is read, *five dollars and twenty cents*. The dollar sign ($) tells us that the numbers mean money. The cents point (.) is read *and*. It is put between the numbers that mean dollars and the numbers that mean cents.

Weekly Savings Chart

If you save weekly	At the end of one year you will have
$.10	$5.20
.25	13.00
.50	26.00
.75	39.00

Use the chart to find the answers to the following questions:

1. If you save $.25 a week, how much will you save in a year? (Read $13.00 as *thirteen dollars*.)

2. If you save $.75 a week, how much will you save in a year?

3. How much would you have to save every week to have $26.00 at the end of the year?

George found an advertisement in the newspaper, announcing a special sale of men's and boy's clothing. Be ready to read the advertisement when your teacher asks you to do so.

	Regular Price	Sale Price
Men's and boy's shoes	$7.75	$6.79
Sport shoes	5.95	4.95
Boy's play shoes	3.00	2.50
Men's topcoats	45.00	39.50
Boy's sport coats	14.95	12.50

Writing Money Numbers

1. Look at the chart. You can see that 1 nickel equals 5 cents and that a dime equals 10 cents, or 2 nickels.

	Cents	Nickels	Dimes	Quarters	Half Dollars
1 nickel	5				
1 dime	10	2			
1 quarter	25	5			
1 half dollar	50	10	5	2	
1 dollar	100	20	10	4	2

2. What does the chart show about a quarter? What does it show about a half dollar? A dollar?

There are three ways to write *cents*:

(a) By using *words*, as 8 cents or 35 cents.
(b) By using the *cent sign*, as 8¢ or 35¢.
(c) By using the *dollar sign* and the *cents point*, as $.08 or $.35.

There are three ways to write *dollars*:

(a) By using *words*, as 9 dollars or 12 dollars.
(b) By using the *dollar sign*, as $9 or $12.
(c) By using the *dollar sign* and the *cents point*, as $9.00 or $12.00.

Dollars and *cents* are written and read like this:

$9.08 - Nine dollars and eight cents.
$50.65 - Fifty dollars and sixty-five cents.
$234.70 - Two hundred thirty-four dollars and seventy cents.

3. Write these amounts of money using figures, the *dollar sign*, and the *cents point:*

Eighteen dollars and one cent.
One dollar and ten cents.
One hundred dollars and five cents.
Seventy-five cents.
Thirty cents.
Ninety-one cents.

Chapter 2

Solving Addition Problems

To solve a problem, you answer the question it asks.

Every simple addition problem *tells* you *how many things* there are *in* each of *two groups*. Then it *asks* you *how many things* there are *in all*, like this:

1. Lois picked 4 apples and Dan picked 5 apples. How many apples in all did the children pick?

To find *how many in all*, use the numbers in the problem to write an example, and *add*. The answer is 9 apples.

$$\begin{array}{rl} 4 & \text{(apples in one group)} \\ +5 & \text{(apples in the other group)} \\ \hline 9 & \text{(The children picked 9 apples in all.)} \end{array}$$

Solve the problems below in the same way.

2. There were 7 boys and 3 girls on Ralph's team. How many children were on the team?

3. There were 6 boys and 3 girls on Judy's team. How many children were on Judy's team?

You will remember:

- When you need to find *how many in all*, you *add*.

Remembering Addition Facts

At the left is an addition example. With its answer it is called an *addition fact.* The sign (+) is the *plus sign.*

$$\begin{array}{r} 5 \\ +3 \\ \hline ? \end{array}$$

It asks you to *add* the *addends* to find the *sum.* This fact may also be written $5 + 3 = 8$. It is read, *five plus three equals eight.*

$$\begin{array}{rl} 5 & \text{addend} \\ +3 & \text{addend} \\ \hline 8 & \text{sum} \end{array}$$

Think the answers for the examples below. Then copy each example and write its sum.

1. $6 + 3 = ?$ $\quad 7 + 2 = ?$ $\quad 3 + 3 = ?$ $\quad 4 + 5 = ?$

2.

3	7	2	4	2	4	6	5	2	3
+4	+3	+6	+2	+5	+6	+2	+4	+8	+5

3.

9	3	7	5	9	8	4	6	4	5
+9	+8	+7	+9	+7	+2	+7	+6	+8	+7

4.

7	9	8	4	6	6	6	3	8	9
+5	+8	+8	+9	+4	+5	+8	+7	+3	+4

5.

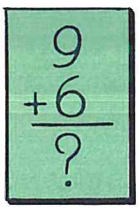
6	7	6	8	7	3	9	8	9	8
+9	+6	+7	+4	+9	+9	+5	+7	+2	+5

6.

7	2	9	8	8	9	7	5	9	5
+8	+9	+3	+9	+6	+1	+4	+8	+6	+5

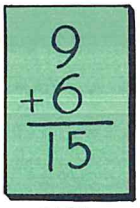
If you forget an addition fact, you can find the answer by counting. To find the answer for $8 + 5 = ?$, think 8, then count 5 more: 9, 10, 11, 12, 13. $8 + 5 = 13$. Why do you start counting with 9? Why do you stop at 13?

Make a practice card for any addition fact that is hard for you to remember, and learn that fact.



FRONT

To use a practice card, look at the front of the card. If you cannot think the answer quickly, look at the back and find the answer. Then try again. Study the fact until you can give the answer quickly.



BACK

The Beanbag Game

Read each problem. Think: What does the problem tell? What question does it ask? What should I do to find the answer? Write the example for the problem and find the answer.

1. The girls had two teams for the beanbag game, the Robins and the Blue Jays. The Robins had 6 players and the Blue Jays had 7 players. How many girls were on the two teams?

2. The boys called their teams the Yanks and the Cubs. The Yanks had 5 players and the Cubs had 5 players. How many players were there on their two teams?

3. Olga's score was 3 on her first throw and 2 on her second throw. What was her score for the two throws?

4. Roy's score was 8 on his first throw and 5 on his second. What was his score for both throws?

5. Jerry's score was 4 on his first throw and 5 on his second. What was Jerry's score for both throws?

6. Dick made a score of 6 points on his first throw, 2 points on the second. How many points in all did he make on the two throws?

7. The Blue Jay's score was 9 on the first round and 7 on the second. What was their score for the two rounds?

Solving Subtraction Problems

You know that to solve a problem you answer the question the problem asks.

Every subtraction problem *tells* you *how many things* there are *in a large group*, and *how many things* there are *in a smaller group*. Then it *asks* a question that you can answer by *finding the difference* between the large group and the small group, like this:

1. Ellen had 9 crayons and Janet had 4 crayons. How many more crayons had Ellen than Janet?

To answer the question, *how many more*, you must *find the difference*. Use the numbers in the problem to write the example, and *subtract*. The difference, or answer is 5.

$$\begin{array}{rl} 9 & \text{(crayons in large group)} \\ -4 & \text{(crayons in small group)} \\ \hline 5 & \text{(more crayons in large group)} \end{array}$$

Solve the problem below by finding the difference.

2. Joe caught 8 fish. Terry caught 4. How many more fish did Joe catch than Terry did?

You will remember:

- You *subtract* to *find the difference* between two numbers.

Remembering Subtraction Facts

At the left below is a subtraction example. With its answer it is a *subtraction fact.* The larger number, 8, is the *minuend.* The smaller number, 5, is the *subtrahend.* The *minus sign* (−) asks you to subtract to find the *difference.* The difference, 3, is the answer. Sometimes the answer is called the *remainder.* This subtraction fact may also be written $8 - 5 = 3$. It is read, *eight minus five equals three.*

$$\begin{array}{r} 8 \\ -5 \\ \hline ? \end{array}$$

$$\begin{array}{rl} 8 & \text{minuend} \\ -5 & \text{subtrahend} \\ \hline 3 & \text{difference} \end{array}$$

When the minuend and the subtrahend are the same, there is no difference. If you have 5 marbles and lose them you have no marbles left. $5 - 5 = 0$.

Find the answer to each of these examples:

1. $6 - 3 = ?$ $\quad 7 - 7 = ?$ $\quad 9 - 4 = ?$ $\quad 11 - 5 = ?$

2.

6	9	8	7	5	9	8	7	8	10
−4	−7	−3	−5	−3	−6	−2	−3	−6	−1

3.

12	13	10	14	17	12	16	11	10	15
−5	−8	−4	−6	−9	−6	−8	−3	−8	−6

4.

13	11	12	14	12	10	11	15	14	13
−4	−9	−3	−5	−9	−5	−7	−9	−7	−5

5.

11	10	18	10	17	11	16	13	10	11
−2	−9	−9	−7	−8	−8	−7	−9	−3	−4

6.

10	11	14	12	10	12	16	14	13	15
−6	−6	−8	−7	−2	−4	−9	−9	−7	−7

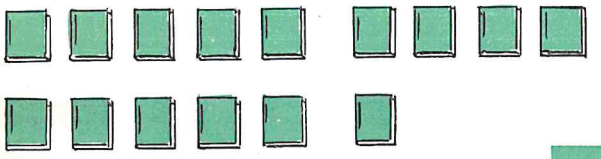
If you forget the answer to a subtraction fact, think of the related addition fact. You know that $8 + 7 = 15$, so $15 - 8 = 7$.

$$\begin{array}{rr} 8 & 15 \\ +7 & -8 \\ \hline 15 & ? \end{array}$$

Make practice cards for the subtraction facts you find hard to remember. Learn those facts.

More Questions Answered by Subtraction

The problems below all ask questions that you can answer by writing a subtraction example and working it.

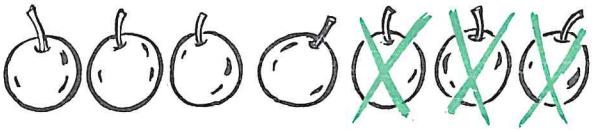


1. *How many fewer?* Ann has 9 books and Susan has 6 books. How many fewer books has Susan than Ann?

Here is the example:

```
  9  (books in large group)
 −6  (books in small group)
  3  (fewer books in small group)
```

The difference, 3 books, is the answer to the question.



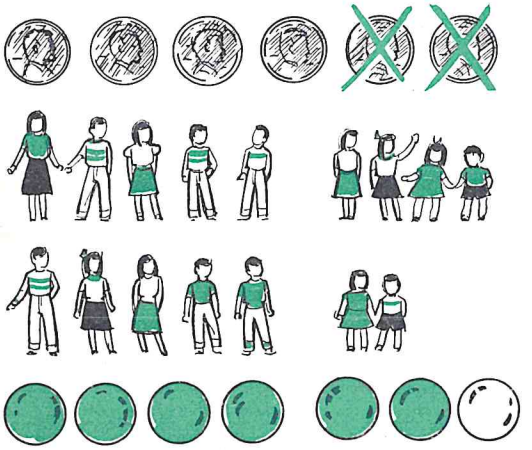
2. *How many left?* Louise had 7 cherries and gave 3 to her brother. How many cherries did she have left?

Here is the example:

```
  7  (cherries in large group)
 −3  (cherries given away)
  4  (cherries left)
```

The difference, 4 cherries, is the answer to the question.

Write the example for each problem below and work it.



3. *How many gone?* Louis had 6¢ and spent some. Now he has 4¢. How much did he spend?

4. *What is the difference?* There are 9 children in the Brown family and 7 children in the Smith family. What is the difference in the size of the two families?

5. *How many in the other group?* Tom had 7 marbles. 6 were green. How many were not green?

Using Subtraction to Solve Problems

Read each of these problems. Find the numbers that tell how many in the large group and how many in the small group. Then find the answer to the problem question. Remember, to find the difference between two numbers, you subtract.

1. Jim saved 7¢. He bought a 5¢ ice cream cone. How much money did he have left?

2. David wants to make 10 model airplanes. He has made 4 of them. How many more planes must he make?

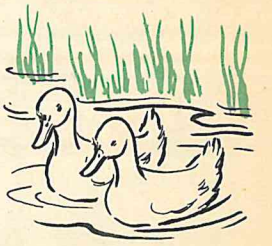
3. There are 7 children playing in the yard. If 3 of them go home, how many will be left?

4. Betty has 8 books. Mary has 6 books. How many more books does Betty have than Mary?

5. Kristine paid 17¢ for a notebook. Marie bought one that cost 9¢. What was the difference in the cost of the notebooks?

6. Ruth put 9 cupcakes on a plate. 5 of them were white. The rest were chocolate. How many chocolate ones were there?

7. At recess, Wilma skipped the rope 15 times without missing. Ethel skipped 8 times without missing. How many fewer times did Ethel skip than Wilma?



8. There were 6 ducks on the pond. John went to get bread to feed them. When he came back only 2 were there. How many were gone?

9. Joyce found 16 sea shells. She gave 7 of them to Mary. How many shells did she have left?

10. In a ball game between the boys and the girls, the girls made 5 runs and the boys made 14 runs. How many more runs did the boys make than did the girls?

A Visit to the Farm

Joyce visited a farm where Ann lived. Read each problem below to find out something about her visit. Think:

> What does the problem tell?

> What question does the problem ask?

> Should I add or subtract to answer the question? Why?

Then write the example and find its answer.

1. Joyce and Ann counted 9 bags of grain on a truck and 7 bags on the ground. How many bags were there in all?

2. Joyce counted 10 white sheep and 3 black sheep. How many more white sheep than black sheep did she count?

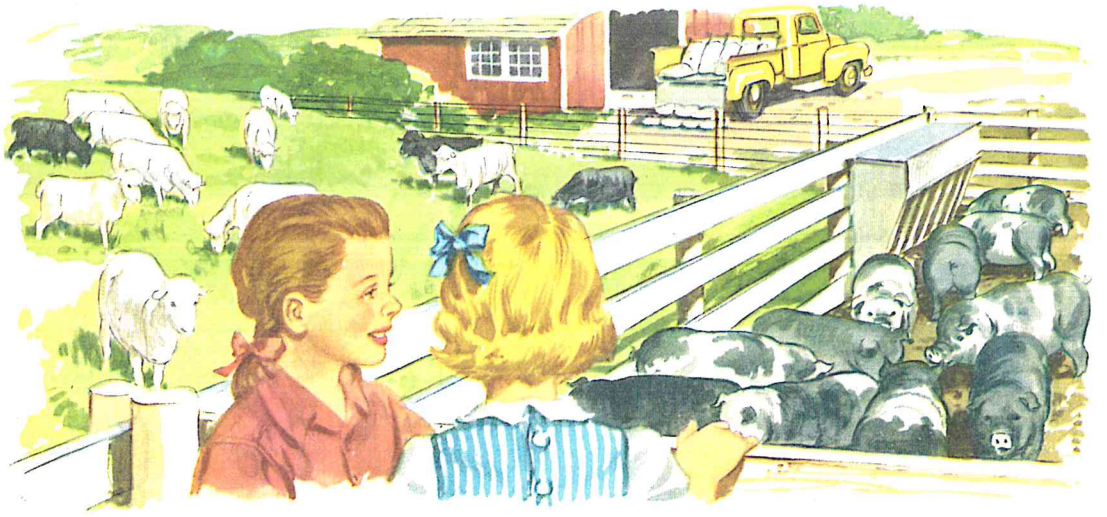
3. Ann's father had 12 cows. There were 4 cows in the barn. The rest were outside. How many cows were outside?

4. The girls found 11 eggs in a nest. Ann dropped 2 and they broke. How many eggs were left?

5. Joyce saw 7 spotted pigs and 4 black ones. How many pigs did she see in all?

6. Ann sold 5 dozen eggs to one customer and 8 dozen to another customer. How many dozen eggs did she sell?

7. Joyce counted 14 hens in the henhouse and 9 hens outside. How many fewer hens were outside than were inside?



Adding One-Place and Two-Place Numbers

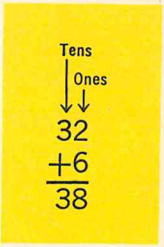
1. Nancy used 32 blue beads and 6 yellow beads to make a chain. How many beads in all did she use?

Add to find the answer. Do it this way:

Ones: 2 + 6 = 8. Write 8 ones in the sum.

Tens: There are no tens to add to 3 tens, so bring down 3 tens. Write 3 tens in the sum.

The sum is 3 tens, 8 ones, or 38.

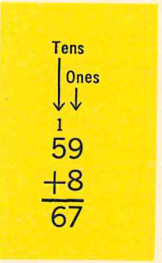


2. Add 59 and 8. Do it like this:

Ones: 9 + 8 = 17. Change 10 ones to 1 ten. 7 ones are left. Remember 1 ten. Write 7 ones.

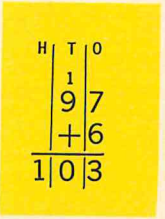
Tens: 1 ten remembered + 5 tens = 6 tens. Write 6 tens in the sum.

The sum is 6 tens, 7 ones, or 67.



3. Study the example at the right. The H stands for hundreds, the T for tens, and the O for ones.

What is the sum of the ones? Were 10 ones changed to 1 ten? What was the sum of tens? Tell why the sum in the example is a three-place number.



Find the sums for the examples in each row:

4.	41	2	64	6	53	85	44	5	4
	6	97	3	70	3	2	5	24	74
5.	75	7	32	8	86	64	56	4	7
	9	28	9	49	6	8	7	77	39
6.	97	2	95	9	95	98	99	8	6
	3	99	7	94	6	8	9	96	94
7.	6	65	7	8	26	95	98	9	46
	63	4	45	33	5	5	9	92	3

Two-Place Answers in Subtraction

1. Charles had 36¢ and spent 4¢ for a pencil. How much money did he have left?

To find the answer, subtract.

Ones: 6 − 4 = 2. Write 2 ones.

Tens: There are no tens to subtract from 3 tens, so bring down and write 3 tens.

36 minuend
−4 subtrahend
32 difference

The difference, or answer, is 3 tens, 2 ones, or 32. Charles had 32¢ left.

To check your answer in subtraction, add the difference and the subtrahend. The sum should be the same as the minuend.

32
+4
36

2. Find each answer and check your work:

98	69	48	57	85	36	79	27	99	18
−6	−6	−3	−4	−3	−6	−8	−3	−7	−4

3. Subtract 7 from 22. Do it this way:

Ones: You cannot subtract 7 from 2, for 2 is less than 7. *Change* 1 ten to 10 ones. Add the 10 ones to the 2 ones. Then there are 12 ones in the minuend. 12 − 7 = 5. Write 5 ones.

Tens: Bring down and write the 1 ten that is left.

T | O
1 | 12
2 | 2
− | 7
1 | 5

The difference, or answer, is 15. 22 − 7 = 15

Copy the examples below and subtract. Check your answers.

4.

46	21	50	64	35	90	73	81	93	51
−8	−9	−7	−8	−6	−9	−6	−7	−4	−6

5.

18	72	87	56	96	52	81	13	23	50
−9	−6	−9	−7	−8	−7	−9	−8	−7	−6

6.

52	68	32	19	22	39	44	82	46	33
−4	−5	−4	−7	−4	−1	−4	−5	−9	−5

Collecting Things

For each problem below, think: What does the problem tell? What does it ask? On your paper write A if you should add, S if you should subtract. Then find the answer.

1. Kate had 33 picture postcards. Her father brought her 5 new ones. How many did she have then?

2. Mary pasted 14 picture cards on one page of her scrapbook, and 9 on another. How many cards did she have?

3. There are 18 pages in one of Bob's stamp books, and 9 in the other. How many pages are there in the two books?

4. James has 18 Mexican stamps and 16 Canadian stamps. How many more Mexican than Canadian stamps has he?

5. Joe filled one book with 95 stamps. He has 9 stamps in his new book. How many stamps has he in all?

6. Bill had 44 pictures of baseball players. He gave 8 of them to Tom. How many pictures of ballplayers had he left?

7. Margaret had 24 seashells. Susan had 9. How many fewer seashells had Susan than Margaret?

8. Joan had collected 27 buttons. Then she found 6 new ones. How many buttons had she then?

9. Larry had 40¢. He paid Bill 6¢ for some pictures of ballplayers. How much money did Larry have left?

Column Addition

Column addition is different from *simple addition*. In column addition there are always more than two addends. You must add and remember. Study these problems:

1. John has 3 marbles, Bob has 2, and Henry 4. How many marbles have the three boys altogether?

Add down to find the answer. Do it like this: $3 + 2 = 5$. Remember 5. $5 + 4 = 9$. The sum is 9. The boys have 9 marbles altogether.

$$\begin{array}{r} 3 \\ 2 \\ +4 \\ \hline 9 \end{array}$$

To check, add up. $4 + 2 = 6$. $6 + 3 = 9$.

2. Jack made 2 runs in the first inning, no runs in the second inning, and 3 in the third. How many runs did he make in all three innings?

You know that we write zero (0) to show *not any*, or *none*. Since 0 shows no runs, we add 2 and 3 to find the sum. $2 + 3 = 5$. Jack made 5 runs.

$$\begin{array}{r} 2 \\ 0 \\ +3 \\ \hline 5 \end{array}$$

3. Donna was storekeeper. She sold 9 packages of paper on Monday, 5 on Tuesday, 6 on Wednesday, and 3 on Thursday. How many packages of paper did she sell altogether?

$$\begin{array}{r} 9 \\ 5 \\ 6 \\ +3 \\ \hline 23 \end{array}$$

Add: $9 + 5 = 14$. $14 + 6 = 20$. $20 + 3 = 23$. *Change* 20 ones to 2 tens. 3 ones are left. The sum is 2 tens and 3 ones, or 23. Donna sold 23 packages of paper. To check: $3 + 6 = 9$. $9 + 5 = 14$. $14 + 9 = 23$.

Copy the examples below, add, and check.

4.

1	4	3	6	3	5	2	1	4	0	2	1
6	1	2	2	2	1	3	1	3	3	1	4
2	1	4	0	2	2	3	6	2	5	0	2

5.

2	2	5	3	4	9	8	1	9	5	6	5
3	9	7	6	5	8	9	4	5	9	8	2
4	8	9	7	4	7	8	2	3	7	3	6
1	2	3	4	5	6	9	8	9	9	7	4

More Column Addition

You know that in column addition you have to add and remember more often than in simple addition. Study the example worked for you at the beginning of each row. Then copy the practice examples in that row, add, and check.

43	**1.** 52	4	30	1	10	21	92	3
1	1	2	3	4	2	3	1	1
2	3	71	2	1	2	3	2	60
+1	2	2	4	82	5	2	3	2
47								
8	**2.** 26	3	9	57	68	3	5	5
77	9	45	6	8	9	5	38	47
+9	5	6	70	9	6	89	7	2
94								
5	**3.** 85	3	4	95	8	79	7	96
3	7	2	8	7	7	5	8	4
4	8	97	3	4	92	9	5	3
+98	2	6	89	3	5	8	80	2
110								

Use column addition to solve the problems below. Read each problem, write the example, add, and check.

4. At his uncle's farm, Fred helped gather eggs. He found 44 in nests in the chicken house, 3 in the barn, and 2 in the woodshed. How many eggs did he find in all?

5. In the barn, Fred counted 19 cows, 1 horse, and 5 calves. How many animals were in the barn?

6. There were 25 children, 8 mothers, 2 fathers, and 2 teachers at the class picnic. How many persons were there?

7. Jerry had 84 United States stamps, 9 stamps from France, 6 from Mexico, and 9 from Canada. How many stamps did Jerry have in all?

Should You Add or Subtract?

For each problem below, think: What does the problem tell? What question does it ask? What does the problem question mean? Should I add or subtract to answer the question? Then write the example and find the answer. Remember:

If the problem question means:	*Then do this:*
> Find how many in all	Add
> Find the difference	Subtract

1. Robert had 25¢ and spent 9¢ for a pad of writing paper. How much did he have left?

2. Doris saw 6 robins, 3 bluebirds, 1 hummingbird, and 2 orioles. How many birds did she see in all?

3. John weighed 98 pounds and then gained 5 pounds. How much does he weigh now?

4. Bill passed out arithmetic workbooks to the children. He had 30 books. After he had given one to each child, he had 5 left. How many children were present?

5. In a spelling test of 24 words, Susan missed 8 words. How many did she spell right?

6. In a ring tossing game, Irma made 5 points, 8 points, and 6 points. What was her total score?

7. Ted's father is 35 years old and Ted is 9 years old. How much younger is Ted than his father?

8. Tom's storybook has 96 pages in it. He has read 8 pages. How many more pages does he have to read?

9. Jack and his father drove 82 miles to Chicago, 7 miles in the city, and 9 miles to Jack's uncle's house. How far had they driven in all?

10. Joe's father bought 14 gallons of gasoline at one station and 9 at another. How much did he buy altogether?

To Help You Remember

The page numbers after the questions tell you where to turn for help if you need it.

▶ *To think and talk about:*

1. How can you find the answer for an addition fact if you forget it? (14) A subtraction fact? (17)

2. What problem questions can you answer by using addition? (13) By using subtraction? (16, 18)

3. How is column addition different from simple addition? How is it like simple addition? (24)

4. What does each figure in the number 7801 mean? (7)

5. Read the number 1932 as a date; as a telephone number. (8)

Show how to find and check the answers for these examples:

6. $\begin{array}{r} 32 \\ +3 \\ \hline \end{array}$ (21)

7. $\begin{array}{r} 47 \\ +6 \\ \hline \end{array}$ (21)

8. $\begin{array}{r} 69 \\ -4 \\ \hline \end{array}$ (22)

9. $\begin{array}{r} 60 \\ -5 \\ \hline \end{array}$ (22)

▶ *To think about and write:*

Copy, write the answers, and check:

1. $\begin{array}{r} 22 \\ 0 \\ +3 \\ \hline \end{array}$ (25)

2. $\begin{array}{r} 96 \\ +9 \\ \hline \end{array}$ (21)

3. $\begin{array}{r} 90 \\ +6 \\ \hline \end{array}$ (21)

4. $\begin{array}{r} 85 \\ 9 \\ +8 \\ \hline \end{array}$ (25)

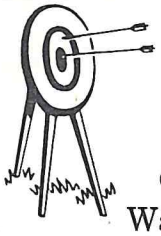
Solve these problems:

5. Tom has 15¢. Mary has 8¢. How much less money has Mary than Tom has? (18)

6. Jerry had 25 marbles. Then he bought 8 more. How many marbles had Jerry then? (21)

7. Joan had 30¢. She found 8¢ in her coat pocket, and her father gave her 5¢. How much money did she have then? (25)

8. Tom had 5¢. How much more money did he need to buy a 10¢ pencil? (18)



Testing Yourself

Copy the examples in each row and write the answers. Watch the signs. Be sure to check the answer to each example.

1.	9	6	8	6	6	7	7	2	9
	+6	+8	+2	+3	+7	+5	+7	+6	+8
2.	76	4	73	90	5	93	32	9	59
	+3	+99	+7	+4	+68	+9	+4	+37	+6
3.	3	6	8	4	5	90	5	5	27	4
	2	1	3	9	2	3	8	9	6	85
	+4	+2	+4	2	7	1	99	8	3	6
				+3	+7	+4	+3	+67	+6	+9
4.	12	13	13	15	12	15	13	6	17	14
	−3	−5	−9	−9	−5	−8	−4	−4	−9	−6
5.	89	65	23	77	80	94	38	73	45	40
	−7	−7	−4	−4	−5	−7	−7	−8	−5	−6

For each problem below, write A if you should add, S if you should subtract. Then find the answer.

6. Joan invited 7 girls and 8 boys to her party. How many children did she invite? 15

7. John had 11¢. He bought a 5¢ candy bar. How much money did he have left? 6 cents

8. Harry has 27 marbles. Tom has 8. How many more marbles has Harry than Tom? 19

9. A farmer owned 95 sheep. He bought 9 more. How many sheep did he then have? 104

10. Charles had 6 Mexican stamps, 7 Canadian stamps, and 9 Spanish stamps in his stamp book. How many stamps were there in his book? 22

11. A farmer planted 90 acres of corn, 9 acres of wheat, and 4 acres of oats. How many acres did he plant altogether? 103

Buying Things for School

For each problem below write A on your paper if you should add to find the answer, or S if you should subtract. Then find the answer.

1. Barbara bought an eraser for 9¢ and a pencil for 5¢. How much did she pay for both?

2. Allen bought a colored pencil for 7¢, a writing pad for 3¢, and a box of crayons for 12¢. How much did he spend?

3. Carol had 50¢. She spent 9¢ for a paint brush. How much money did she have left?

4. Gretchen bought a package of paper for 8¢ and a box of water colors for 35¢. How much did she spend?

5. George bought some crayons for 28¢ and a penholder for 7¢. How much more did the crayons cost than the penholder?

6. Helen spent 67 cents for a workbook and 8 cents for a writing pad. How much did she spend altogether?

7. What is the total cost of a spelling book at 89 cents, a pencil at 5 cents, and a pad of paper at 8 cents?

Adding Two-Place Numbers

1. You know how to add examples like example A. First you add the ones. 5 + 0 = 5. Then you add the tens. 3 + 3 = 6. The examples in the next row are like example A. Copy them, add and check.

A

H	T	O
	3	5
+	3	0
	6	5

53	15	22	68	35	54	20	14
35	24	43	10	52	45	36	83

2. Study example B. Add the ones. Then add the tens and change 10 tens to 1 hundred. No tens are left. Now copy these examples, add and check.

B

H	T	O
	4	4
+	6	3
1	0	7

90	65	42	40	23	62	87	96
55	84	97	60	85	51	40	72

3. In example C, add the ones. Change 10 ones to 1 ten and remember the 1 ten. No ones are left. Then add the tens. Now copy the examples in the next row. Add and check.

C

	T	O
	1	
	2	5
+	5	5
	8	0

28	43	75	29	42	36	52	45
19	27	16	69	38	27	29	47

4. In example D, first add the ones. Change 10 ones to 1 ten and remember the 1 ten. Then add tens. Change 10 tens to 1 hundred. Now copy the examples in the next row. Add and check.

D

H	T	O
	1	
	9	6
+	8	6
1	8	2

82	54	67	39	99	67	86	89
78	98	47	87	99	75	19	98

5. Copy the examples below. Add and check.

32	64	88	46	38	73	36	75	25	43
45	25	88	92	25	56	47	89	69	85

You will remember:

- You add tens and change tens to hundreds in the same way that you add ones and change ones to tens.

Subtracting Two-Place Numbers

1. Betty brought 69 pounds of scrap paper to school. Jerry brought 35 pounds. How many fewer pounds of scrap paper did Jerry bring than Betty?

To find how many fewer you subtract to find the difference, as in example A. Subtract the ones. Then subtract the tens. What is the difference? Now copy these examples and subtract.

73	56	85	98	84	99	79	47
61	36	54	43	22	51	30	13

2. Study example B. There are no ones in the minuend, so you *change* 1 ten to 10 ones, and *remember* 5 tens are left. 10 ones − 6 ones = 4 ones. 5 tens left − 4 tens = 1 ten. The answer, or difference, is 1 ten, 4 ones, or 14. Now copy these examples and subtract.

83	74	65	35	80	52	94	93
57	36	28	17	48	19	39	35

3. Study example C. Do you see that after 1 ten was changed to 10 ones, there was no difference between the tens? Tell how to work C and how to check it. (Look at example D) Now copy these examples, subtract and check.

72	57	52	36	65	26	98	42
68	54	49	24	56	17	89	35

4. Copy these examples, subtract and check.

55	98	45	49	72	63	67	81	30	79
21	88	19	15	35	27	34	72	10	75

A

T	O
6	9
−3	5
3	4

B

T	O
5	10
6	Ø
−4	6
1	4

C

T	O
2	10
3	Ø
−2	3
	7

D

T	O
1	
	7
+2	3
3	0

You will remember:

- When there are fewer ones in the minuend than in the subtrahend, change 1 ten to 10 ones before you subtract.

The School Circus

For each problem below write A if you should add, or S if you should subtract. Then find the answer. Remember:

If the problem question means:	*Then do this:*
> Find how many in all	Add
> Find the difference	Subtract

1. The fourth-grade girls sold 45 tickets to the school circus. The boys sold 30. How many tickets to the school circus did the girls and boys in the fourth grade sell?

2. The fifth-grade girls sold 33 tickets. The boys sold 49. How many tickets did the fifth grade sell?

3. The boys set up 75 chairs on one side of the gym and 85 on the other side. How many chairs did they set up?

4. There were 12 girls and 24 boys in the circus band. How many more boys than girls were there in the band?

5. There were 76 parents and 98 children at the first show. How many fewer parents than children were at the first show?

6. At the ice cream stand the girls sold 48 chocolate cones and 36 vanilla cones. How many did they sell in all?

7. They also sold 72 bags of popcorn and 56 bags of peanuts. How many more bags of popcorn than peanuts did they sell?

Column Addition with Two-Place Numbers

1. One day at his father's filling station Tom counted the cars from other states. He counted 39 cars from Michigan, 24 from Ohio, 85 from Illinois and 12 from Indiana. How many cars in all did he count?

H	T	O
	2	
	3	9
	2	4
	8	5
+	1	2
1	6	0

To answer the problem question, add. Study the example at the right. What was the sum of ones? Were 10 ones changed to 1 ten? What was the sum of tens? Were 10 tens changed to 1 hundred? Why is there a 0 in ones' place in the sum?

Copy the examples below, add and check. Change ones to tens and tens to hundreds when you need to do so.

2.

20	43	52	19	52	70	64	40	25	64
12	22	15	30	73	35	20	92	17	7
37	32	20	50	81	40	33	81	30	48

3.

25	13	24	18	39	52	77	69	72	6
14	10	26	25	18	60	32	90	8	57
29	27	13	23	50	29	15	10	43	3
30	15	19	15	61	40	26	79	30	94

Use column addition to solve these problems:

4. The fourth-grade children put paper covers on new books. They covered 45 reading books, 30 science books, and 35 arithmetic books. How many books did they cover?

5. Mary took 15 books upstairs to the library, Jane took 20, Ann 18, and Helen 17. How many books in all did the girls take to the library?

6. The children brought bulbs for the school garden. They brought 48 crocus bulbs, 50 tulip bulbs, and 30 lily bulbs. How many bulbs did they have for the garden?

7. Jerry has 89 United States stamps, 14 Canadian, 8 French and 15 Italian stamps. How many stamps has Jerry in all?

Adding and Subtracting Money

1. Judy spent \$.39 for a game, \$.75 for a doll, and \$.29 for a coloring book. How much did she spend in all?

You see that the *dollar sign* is written at the *left* of the *first addend* and the *answer*. The *cents point* is written at the left of every addend, and between the dollars and dimes in the answer.

\$.39
.75
+.29
\$1.43

Add the *cents*. The sum is 23. Change 20 cents to 2 dimes. Add the 2 dimes to the other dimes.

Add the *dimes*. The sum is 14. Change 10 dimes to 1 dollar. Judy paid \$1.43 for the things that she bought.

2. Find these sums. Change cents to dimes, and change dimes to dollars when you have to. Add down. Then add up to check your work.

\$.08	\$.50		\$.97		\$.39	
.60	.37	\$.43	.25	\$.50	.10	\$.69
.07	.26	.29	.35	.49	.47	.48

3. John bought a plastic car for \$.75 and a piggy bank for \$.29. How much less did he spend for the piggy bank than for the plastic car?

5¢ is less than 9¢, so 1 dime is changed to 10 cents. 15¢ − 9¢ = 6¢. 6 dimes left − 2 dimes = 4 dimes. John spent \$.46 less for the bank than for the car.

\$.75
−.29
\$.46

Copy the examples below and subtract. Change 1 dime to 10 cents when you need to. Check each answer.

4.	\$.98	\$.27	\$.79	\$.95	\$.87	\$.61	\$.32
	.27	.08	.06	.69	.78	.45	.19
5.	\$.38	\$.61	\$.45	\$.82	\$.66	\$.42	\$.35
	.18	.24	.43	.39	.47	.15	.25

Solving Problems

Read each problem carefully. Decide whether to add or subtract to answer the question. Write A if you should add, or S if you should subtract. Then find the answer.

1. Jack weighs 79 pounds and his father weighs 55 pounds more than Jack. How much does his father weigh?

2. Sally is reading a book that has 99 pages and Laura is reading one that has 85 pages. How many more pages are there in Sally's book than in Laura's book?

3. Nancy bought her lunch at school. She paid 12¢ for a sandwich, 4¢ for a bottle of milk, 2¢ for some cookies, and 6¢ for an apple. How much did she spend for lunch?

4. Paul had 31 correct answers on a test and Peter had 24. How many more correct answers did Paul have than Peter?

5. Herbert's father bought gasoline four times on a trip as follows: 10 gallons, 12 gallons, 11 gallons, and 13 gallons. How much gasoline did he buy altogether?

6. Carol's brother weighs 95 pounds and her sister weighs 8 pounds less. How much does her sister weigh?

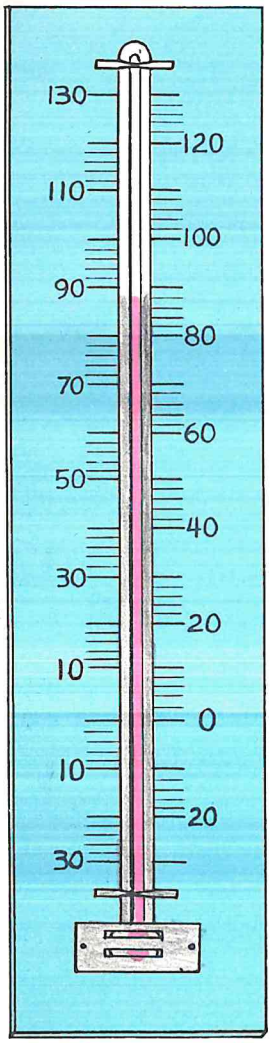
7. Mark bought a kite for $.59, a top for $.25, and some picture books for $.35. What was the total cost?

8. If there are 23 children in the first grade, 27 in the second, 25 in the third, and 26 in the fourth, how many children are there in the four grades?

9. Joan and Doris went shopping. Doris bought a scarf for $.79 and Joan bought a blouse for $.98. How much less money did Doris spend than Joan?

10. Herbert had 75¢. He spent 38¢ for a ball. How much money did he have left?

11. Fred had $.80 and earned $.25 and $.45 by running errands. How much money did he have then?



Learning about Thermometers

You know that the *liquid* in a thermometer moves *up* or *down* as the temperature changes.

Which way does it go when the temperature gets warmer? Colder?

You also know that *temperature* is measured in *degrees*. A small circle (°) written after a number means degrees, like this: 88°.

If you look carefully at the thermometer in the picture, you will see heavy lines with numbers next to them. Between the heavy lines are light marks.

On most thermometers, when the liquid moves up from one of these heavy lines to the next heavy line, the temperature is 10° warmer. When it moves down the same distance, the temperature is 10° colder.

When the liquid moves from one light mark to the next light mark, the temperature has changed 2°.

Some thermometers are marked to show that water boils at 212° and freezes at 32°.

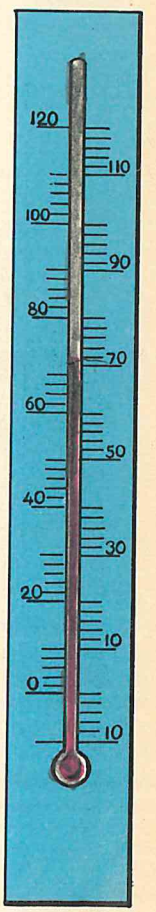
1. The thermometer in the picture shows 88°. If the liquid moved to the line above, what would the temperature be?

2. Get 3 thermometers and place them side by side. After several minutes, read the temperature on each thermometer. Do they all show the same degree of temperature?

3. Hang one of the thermometers 2 feet from the ceiling, another 2 feet from the floor, and the third 5 feet from the floor. After an hour read all of them. Are all three readings the same? Why?

Keeping a Temperature Record

The fourth-grade children used a thermometer to keep a temperature record. These problems tell some of the things that they did and some of the facts that they learned. Find the answer to each question.



1. There were 13 girls and 9 boys who took turns in keeping the temperature record. How many more girls than boys worked on the record?

2. On a hot day in September, the temperature was 72 degrees at 8 o'clock in the morning. By noon it had gone up to 90 degrees. How many degrees had it gone up?

3. On a cold day the temperature rose from 12 degrees at 9 o'clock to 27 degrees at 2 o'clock. How many degrees did it rise?

4. One day the temperature was 44 degrees at noon. It dropped to 25 degrees by 3 o'clock. How much colder was it at 3 o'clock than at noon?

5. At noon on Friday the temperature was 58 degrees. At 3 o'clock it was 72 degrees. How much warmer was it at 3 o'clock than it was at noon?

6. On a cold Monday the high temperature was 15 degrees. On Tuesday the high was 31 degrees. How much colder was it on Monday than on Tuesday?

7. One day Patsy told her father that the low temperature that day was 21 degrees by the thermometer at school. Her father said that it was 19 degrees by a thermometer where he worked. How much colder was it where her father worked than it was at school?

8. When the outside temperature is 49 degrees and the schoolroom temperature is 68 degrees, what is the difference between the outside and the inside temperature?

Bob's mother needed another cabinet in the kitchen. Bob used a foot ruler to measure the space so that his mother would know what size cabinet to buy. He said, "The space is 30 inches wide, 25 inches deep, and 35 inches high."

When we measure things to find how long, how wide, how deep, how high, or how thick they are, we use *linear measure*. It means *long measure*, or *measure of length*.

You will often have to use the facts given in this table of *linear measure*.

12	inches (in.)	= 1	foot (ft.)
3	feet (ft.)	= 1	yard (yd.)
36	inches (in.)	= 1	yard (yd.)

1. Could Bob have used a yardstick to measure the space for the kitchen cabinet?

2. Look at a foot ruler and a yardstick. How is each one divided?

3. Measure the width of your classroom using a foot ruler. Then measure it using a yardstick. Is it easier to measure your room with a ruler, or a yardstick? Why?

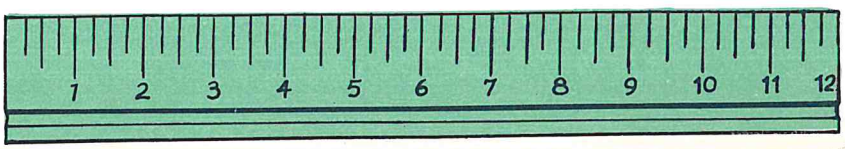
4. Measure the length and width of the top of your desk. Did you get the same answer as the other children who measured their desks?

Think what number belongs in each place where you see a question mark below. Then copy, and write the numbers in place of the question marks.

5. 1 foot = ? inches 12 inches = ? foot 2 feet = ? inches

6. 1 yard = ? feet 3 feet = ? yard 2 yards = ? feet

7. 1 yard = ? inches 1 yard = ? feet 36 inches = ? feet



Practice in Addition and Subtraction

Copy these examples, add and check:

1.

6	8	9	9	8	9	7	4	8	9	6	7
9	8	7	9	7	5	6	9	6	8	5	8

2.

5	68	7	46	72	17	89	56	35	57
30	4	99	23	56	47	23	74	78	43

3.

33	7	8	$.07	14	43	73	53	$.69
2	1	0	.04	3	30	97	69	.21
6	4	8	.05	21	25	80	57	.72
4	2	7	.08	30	31	59	6	.58

Copy these examples, subtract and check:

4.

9	6	3	8	9	8	7	9	8	9	7	8
5	4	2	3	2	4	5	6	7	4	2	5

5.

13	15	17	12	16	11	17	14	18	12
4	8	9	7	9	6	8	9	9	5

6.

80	96	61	78	$.45	57	49	$.32
6	5	3	6	.05	29	13	.17

7.

74	95	53	86	$.62	90	29	$.81
68	26	13	39	.47	52	20	.14

For each problem write A or S. Then find the answers.

8. Ann and Rita bought 78 sheets of paper to use in making a picture book. Ann used 39 sheets. How many sheets were left for Rita to use?

9. Ned sold 24 Christmas Seals on Monday, 15 on Tuesday, and 17 on Wednesday. How many did he sell in all?

10. If Carl had $.34 and spent $.15 for Christmas Seals, how much money did he have left?

11. For lunch Margaret spent 8¢ for soup, 9¢ for a sandwich, and 5¢ for milk. How much did she spend in all?

The Calendar

The table and the calendar below will help you answer some of the questions on this page. The calendar in your classroom will help you answer others.

7 days (da.)	= 1 week (wk.)
12 months (mo.)	= 1 year (yr.)
52 weeks	= 1 year
365 days	= 1 year
366 days	= 1 leap year

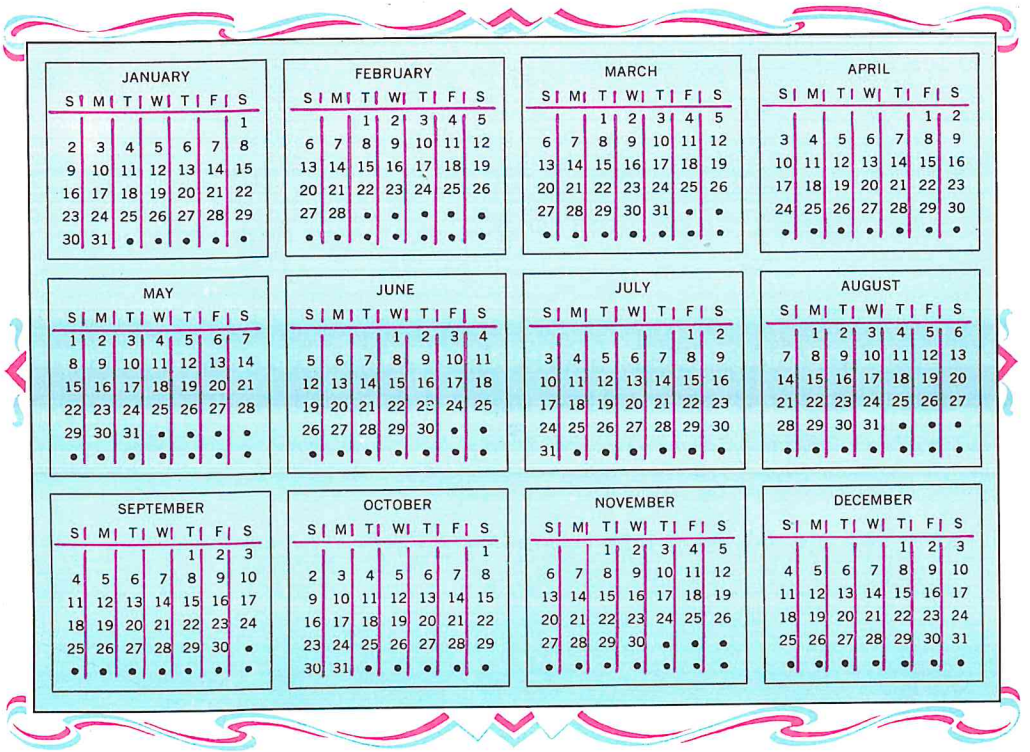
We think of a year as 365 days, but it really has $365\frac{1}{4}$ days. So we make every fourth year a leap year with 366 days. 1956, 1960, and so on, are leap years.

1. Name the days of the week and the months of the year.

2. Which months have 30 days? 31 days? 28 days?

3. According to the calendar below, what day of the week is: July 4; January 1; February 22; December 25?

4. According to the calendar in your room what day of the week is: July 4; January 1; December 25; your own birthday?



JANUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	•	•	•	•	•

FEBRUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	•	•	•	•	•
•	•	•	•	•	•	•

MARCH

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	•	•
•	•	•	•	•	•	•

APRIL

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
•	•	•	•	•	•	•

MAY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	•	•	•	•
•	•	•	•	•	•	•

JUNE

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	•	•
•	•	•	•	•	•	•

JULY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	•	•	•	•	•	•

AUGUST

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	•	•	•
•	•	•	•	•	•	•

SEPTEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	•
•	•	•	•	•	•	•

OCTOBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	•	•	•	•	•

NOVEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	•	•	•
•	•	•	•	•	•	•

DECEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
•	•	•	•	•	•	•

Learning about Liquid Measures

Betty and Judy are making cookies. Betty said, "We need 2 cups of milk." Judy used a *measuring cup* to measure the milk.

Liquids such as milk, water, gasoline, and paint are measured in cups, pints, quarts, or gallons. We use:

Measuring cups for small amounts.

Pint measures for amounts larger than 2 cups, but smaller than a quart.

Quart measures for amounts larger than 2 pints, but smaller than a gallon.

Gallon measures for amounts larger than 4 quarts.

You will often have to use this table of *liquid measures*.

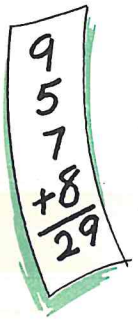
2 measuring cups (c.) = 1 pint (pt.)
2 pints = 1 quart (qt.)
4 quarts = 1 gallon (gal.)

1. Bring to school a measuring cup, and a pint, a quart, and a gallon measure. Use them to prove that the table of liquid measure above is right.

2. Find cans and bottles of different sizes. Decide about how many cups, pints, quarts, or gallons each holds. Write your guess on the board. Then fill the can or bottle with water. Use a cup, pint, quart, or gallon measure. Was your guess about right?

Addition and Subtraction Practice

Copy these examples. Add and check:



1.

3	4	8	3	0	3	6	7	8	5	7	6
2	4	3	6	5	7	4	2	8	9	8	0

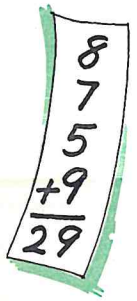
2.

9	4	4	6	9	8	9	7	9	8	6	8
5	7	5	6	7	6	9	7	6	5	9	7

3.

8	9	4	2	4	5	6	7	9	9	8	7
9	8	8	7	6	5	5	4	4	3	4	6

check



4.

36	27	98	63	50	79	95	48	97	87
5	2	7	9	4	5	8	6	9	7

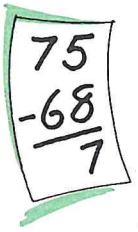
5.

83	40	26	54	89	19	65	$.37	$.98
97	72	59	35	64	18	46	.81	.67

6.

8	2	4	87	9	23	62	$.16	$.78
7	1	8	6	9	30	53	.29	.46
5	43	7	9	98	21	71	.14	.89
9	2	63	5	7	24	82	.38	.57

Copy these examples and subtract. Check your work.



7.

11	12	14	14	16	12	14	15	18	15
3	4	8	6	7	5	7	6	9	7

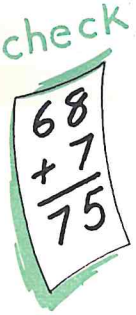
8.

12	11	15	16	12	13	12	13	17	14
6	9	9	8	7	8	9	7	8	5

9.

46	37	21	32	80	86	79	65	90	80
3	5	4	6	5	9	9	8	7	1

check



10.

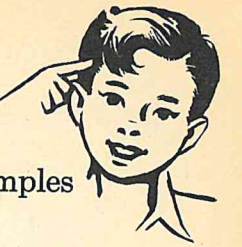
39	53	37	46	87	60	44	37	82	71
26	19	28	24	48	21	23	35	35	69

11.

$.86	$.23	$.96	$.60	$.55	$.79	$.48	$.43
.47	.14	.36	.25	.48	.50	.19	.28

12.

75	43	26	37	65	96	76	54	81	30
68	41	16	19	38	87	49	25	78	29



To Help You Remember

The page numbers following the questions and examples show you where to turn for help if you need it.

▶ *To think and talk about:*

1. Read these prices: \$.40 \$2.50 68¢ \$14.05 (9)

2. In the addition example 36 + 24 = 60, which numbers are addends and which is the sum? (14)

3. In the subtraction example 62 − 38 = 24, tell what each number is called. (17)

Tell how to find the answer for each of these examples and how to check each answer. Show each step.

4. 53 − 19 (31)

5. 87 − 48 (31)

6. 29 + 18 (30)

7. 89 + 36 (30)

8. What does each figure in the number 3705 mean? How can you tell what each figure means? (7)

9. Tell what you would use to measure each of these: milk (41) a piece of string (38) the temperature (36).

10. Explain the steps you would follow to solve this problem: Jerry had 20¢ and earned 15¢. How much money did he then have? (13,32)

▶ *To think about and write:*

Copy the examples below and find the answers. Check your work.

1. 31 + 12 + 14 (33)

2. 41 + 62 + 83 (33)

3. 43 + 29 + 18 + 19 (33)

4. 79 + 18 + 3 + 42 (33)

5. 72 − 63 (31)

6. \$.50 − .25 (34)

7. 30 + 20 (30)

8. \$.90 − .57 (34)

9. Write the temperature, seventy-five degrees, using figures and the sign for degrees. (36)

Testing Yourself

Copy the examples below and find the answers:

1.

4	5	7	6	8	15	3	18	9	15
+2	+3	−2	+5	−3	−8	+6	−9	+7	−6

2.

6	16	8	6	17	13	5	12	8	16
+0	−7	+9	+4	−9	−4	+5	−7	+5	−9

3.

24	37	64	82	32	48	98	40	65	90
+2	−5	+7	−3	−6	+5	+6	−5	+7	−8

4.

34	75	86	42	80	65	47	73
+12	−53	+17	+84	−25	+74	+96	−68

5.

2	3	3	6	17	6	$.27	$.65
1	2	12	5	24	95	.14	.47
0	1	1	8	6	8	.38	.32
+3	+2	+2	+4	+35	+4	+.06	+.54

Solve these problems:

6. Shirley is 9 years old and her brother is 16. What is the difference between their ages?

7. Louis and his father drove 97 miles in the morning and 56 miles in the afternoon. How far did they drive?

8. Jane had 59¢ and spent 15¢ for a toy. How much money had she left?

9. Charles had 16 Mexican stamps, 27 Canadian stamps, and 14 Spanish stamps. How many stamps had he in all?

10. Betty counted 36 cans of peas, 24 cans of beans, 18 cans of beets, and 24 cans of tomatoes in the storeroom at home. How many cans did Betty count in all?

11. Jack had collected 60 airplane pictures for his picture book, but could find only 37 of them. How many were gone?

12. Dan caught 19 perch, 9 bluegills, and 5 bass on a fishing trip. How many fish did he catch in all?

Chapter 4

A Picnic in the Park

Mary and her friends were planning with their mothers to go on a picnic. There were 2 mothers who would each make 4 pies. How many pies would that be?

$$\begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array}$$

Mary could find the answer by adding as at the left. $4 + 4 = 8$.

$$\begin{array}{r} 4 \\ \times 2 \\ \hline 8 \end{array}$$

She could also multiply to find the answer as at the right. $2 \times 4 = 8$. The answer is 8 pies.

When you need to find how many in all of the equal groups, you can multiply to find the answer. Study this example:

$$\begin{array}{rl} 4 & \text{(tells how many in each equal group)} \\ \times 2 & \text{(tells how many equal groups)} \\ \hline 8 & \text{(tells how many in all the equal groups)} \end{array}$$

Solve this problem by adding, then by multiplying:

There are 6 cupcakes in a box. Joan said her mother would bring 2 boxes of cupcakes. How many cupcakes would that be?

You will remember:

- You *multiply* to find *how many in all the equal groups.*

Multiplication Facts

At the right is a *multiplication fact.* It is read, *two times four equals eight.* The 4 is the *multiplicand.* It tells you that there are 4 things in each group. The 2 is the *multiplier.* It tells you that there are 2 groups of things. The sign (×) asks you to answer the question, *How many in all the equal groups?* It is called the *times sign;* it asks you to *multiply.* The answer, 8, is the *product.* This multiplication fact may also be written like this: $2 \times 4 = 8$.

4 multiplicand
×2 multiplier
8 product

Find the products for these examples:

1.	2	2	2	3	6	3	8	5	5	5
	×4	×3	×8	×2	×2	×4	×5	×7	×1	×3
2.	4	3	4	3	5	1	4	5	2	6
	×8	×7	×3	×6	×9	×4	×7	×4	×6	×4
3.	9	7	2	4	6	4	8	7	3	8
	×2	×4	×5	×6	×3	×4	×4	×2	×8	×3
4.	8	2	7	9	5	2	4	5	3	6
	×2	×9	×5	×5	×8	×7	×9	×6	×9	×5
5.	3	5	1	9	4	1	5	3	7	9
	×5	×2	×5	×3	×5	×3	×5	×3	×3	×4

If you forget the answer to a multiplication fact, you can find it by adding as shown at the right.

6 × 3 = ? Since 6 + 6 + 6 = 18 then 6 × 3 = 18

If you missed any of the examples above, make practice cards for those examples. Practice with your practice cards until you can give the answer for each example quickly.

Using Multiplication to Solve Problems

Each problem below tells *how many there are in each equal group*. It also tells *how many equal groups* there are. Then it asks you to find *how many in all of the equal groups*. Read the first problem and answer the questions about it.

1. There are 6 children seated at each of 3 tables. How many children are there in all?

6	(children in each group)
×3	(groups of children)
18	(children in all the groups)

How many children are sitting at each table or in each equal group?

How many equal groups of children are there?

How can you find how many children there are in all of the equal groups?

How many children are there in all of the equal groups?

Use multiplication to solve these problems:

2. Betty bought 3 pencils at 5¢ each. How much did she spend?

3. Dick and Sam planted 5 tulip bulbs in each of the 7 flower pots. How many tulip bulbs did they plant?

4. The seats in the fourth-grade room are in 7 rows with 4 seats in each row. How many seats are there in all?

5. Joyce and her two friends bought 3 ice cream cones at 9¢ each. How much did the cones cost?

6. How much will 6 stamps cost at 3¢ each?

7. If Bill spends 7¢ each day for carfare, how much will he spend in 5 days?

8. Find the cost of 4 ice cream cones at 6¢ each.

9. A box of candy has 6 rows of pieces with 4 pieces in each row. How many pieces of candy are there in the box?

Multiplying a Two-Place Number

1. John has 4 bags of marbles. There are 21 marbles in each bag. How many marbles are there in all of the bags?

You multiply to find the answer. Why?

Multiply the *ones:* 4 × 1 one = 4 ones. Write 4.

Multiply the *tens:* 4 × 2 tens = 8 tens. Write 8.

There are 84 marbles in all the bags.

T	O
2	1
×	4
8	4

2. Roger sold 92 papers in one day. At this rate, how many papers would he sell in 3 days?

To find the answer, multiply 92 by 3, like this:

Ones: 3 × 2 ones = 6 ones. Write 6 ones.

Tens: 3 × 9 tens = 27 tens. Change 20 tens to 2 hundreds.

7 tens are left. Write 2 hundreds and 7 tens.

Roger would sell 276 papers in 3 days.

H	T	O
	9	2
	×	3
2	7	6

A 0 in ones' place in the multiplicand means no ones to multiply. Write 0 in ones' place in the product. Then multiply the tens.

```
  40
 ×9
 360
```

Copy the examples below, multiply, and check. *To check your answer in multiplication multiply carefully again.*

3.	32	23	11	30	22	10	11	42	14	21
	×3	×2	×4	×3	×4	×5	×3	×2	×2	×5
4.	70	61	93	62	12	84	50	91	80	12
	×4	×5	×3	×4	×2	×2	×8	×5	×4	×3
5.	22	33	20	21	23	71	33	43	93	50
	×2	×2	×5	×4	×3	×3	×3	×3	×2	×4
6.	52	64	92	72	63	73	13	82	41	54
	×2	×2	×4	×4	×2	×3	×2	×4	×3	×2
7.	51	31	43	44	22	63	34	41	12	11
	×5	×2	×2	×2	×3	×3	×2	×5	×4	×5

More Two-Place Numbers to Multiply

1. Mary pasted 28 stamps on each page of her stamp book. How many stamps are there on 3 pages?

Multiply 28 by 3. Do it this way:

T	O
2	8
×	3
8	4

Ones: 3 × 8 ones = 24 ones. Change 20 ones to 2 tens. Remember 2 tens. Write 4 ones.

Tens: 3 × 2 tens = 6 tens. 6 tens + 2 tens remembered = 8 tens. Write 8 in tens' place.

There were 84 stamps on 3 pages.

2. Multiply 53 by 5. Do it like this:

H	T	O
	5	3
	×	5
2	6	5

Ones: 5 × 3 ones = 15 ones. Change 10 ones to 1 ten. Remember 1 ten. Write 5 ones.

Tens: 5 × 5 tens = 25 tens. 25 tens + 1 ten you remembered = 26 tens. Change 20 tens to 2 hundreds. 6 tens are left. Write 2 hundreds and 6 tens. The answer is 265.

3. Practice multiplying and adding a number to the product. Multiply each number at the right by 2 and add 1 to the product. 2 × 2 = 4. 4 + 1 = 5.

2	3	4	5	6	7	8	9

4. Multiply each number at the right above by 3 and add 1 to the product. Then multiply and add 2 to each product.

5. Multiply each number by 4 and add 1 to each product. Then multiply and add 2. Then multiply and add 3.

6. Multiply each number by 5 and add 1. Then multiply and add 2. Then multiply and add 3. Then multiply and add 4.

Copy these examples and multiply. Check by multiplying again.

7.	36	14	24	13	45	18	27	14	36	29
	× 2	× 6	× 4	× 5	× 2	× 2	× 3	× 5	× 5	× 2
8.	24	36	19	54	98	89	34	25	53	27
	× 5	× 4	× 2	× 8	× 2	× 3	× 6	× 7	× 6	× 5

Solving Problems

Read each problem. Decide what it tells and what question it asks. Write A, S, or M to show whether you should add, subtract, or multiply. Then find the answer. Remember:

If the problem question means:	*Then do this:*
> Find how many in all	Add
> Find the difference	Subtract
> Find how many in all of the equal groups	Multiply

1. Paul Brown's father paid 3 boys each 25¢ to help him clean a vacant lot for a garden. How much did he pay the boys?

2. Mr. Brown bought 4 dozen cabbage plants at 20¢ a dozen. How much did he pay for the cabbage plants?

3. He bought 24 tomato plants and 48 cabbage plants. How many more cabbage plants than tomato plants did he buy?

4. The 2 dozen tomato plants cost 44¢ a dozen. How much did Mr. Brown pay for the tomato plants?

5. One day Mr. Brown paid 25¢ for bean seed, 15¢ for carrot seed, 10¢ for radish seed, and 79¢ for a pair of gardening gloves. How much did he spend for these things?

6. Mrs. Brown paid 15¢ a package for 3 packages of flower seeds. How much did the flower seeds cost?

7. Paul had 40¢. He paid 15¢ for a package of sunflower seed. How much money did he have left?

8. One day Jane went to the store for her mother. She paid 65¢ for meat and 21¢ for bread. How much did she spend?

9. When the tomatoes were ready, Mrs. Brown canned 31 quarts of tomatoes. Later she canned 27 quarts of beans. How many fewer quarts of beans than tomatoes did she can?

10. Mr. Brown paid Paul 75¢ each week for helping in the garden. How much did he pay Paul in 4 weeks?

Adding Two- and Three-Place Numbers

1. Study the two examples at the right below. You will remember how to add examples like 856 + 85. Do it like this:

Ones: 6 + 5 = 11. Change 10 ones to 1 ten. 1 one is left. Remember 1 ten. Write 1 one.

Tens: 1 (remembered) + 5 = 6. 6 + 8 = 14. Change 10 tens to 1 hundred. 4 tens are left. Remember 1 hundred. Write 4 tens.

Hundreds: 1 (remembered) + 8 = 9. Write 9.

H	T	O
1	1	
8	5	6
+ 8	5	
9	4	1

2. When you add 988 and 99 you must change 10 hundreds to 1 *thousand*, like this:

Ones: 8 + 9 = 17 = 1 ten and 7 ones. Remember 1 ten. Write 7 ones.

Tens: 1 + 8 + 9 = 18 = 1 hundred and 8 tens. Remember 1 hundred. Write 8 tens.

Hundreds: 1 + 9 = 10. 10 hundreds = 1 *thousand* and 0 hundreds. Write 1 thousand and 0 hundreds.

Th	H	T	O
	1	1	
	9	8	8
	+ 9	9	
1	0	8	7

Copy the examples below, add, and check. Remember, change 10 hundreds to 1 thousand when you need to.

3.	324 72	706 53	820 40	760 39	**4.**	482 85	675 34	193 60
5.	975 94	950 56	967 81	937 81	**6.**	718 36	456 29	635 58
7.	269 98	583 67	897 89	768 79	**8.**	972 28	948 97	994 59
9.	100 37 10	440 57 82	62 469 90	28 37 609	88 22 362	79 86 289	858 89 79	53 21 978

Now you have learned:

- You can change 10 hundreds to 1 thousand in the same way that you change 10 ones to 1 ten.

Subtracting Two-Place from Three-Place Numbers

1. Helen and her mother planned to drive to a city which was 457 miles from home. After driving 99 miles, they stopped to buy gas. How much farther did they have to drive?

To solve this problem, subtract 99 from 457:

Ones: Change 1 ten to 10 ones and add them to the 7 ones. $17 - 9 = 8$. Write 8 ones.

Tens: Change 1 hundred to 10 tens and add them to the 4 tens left. $14 - 9 = 5$. Write 5.

Hundreds: Bring down the 3 hundreds left.

How much farther had they to drive?

H	T	O
	14	
3	~~4~~	17
~~4~~	~~5~~	~~7~~
−	9	9
3	5	8

2. The example shown at the right has no ones in the minuend, and no tens to change to ones. You must change 1 hundred to 10 tens, and then change 1 ten to 10 ones before you subtract. 10 ones − 5 ones = 5 ones. 9 tens left − 7 tens = 2 tens. There is 1 hundred left to bring down. What is the answer to this example?

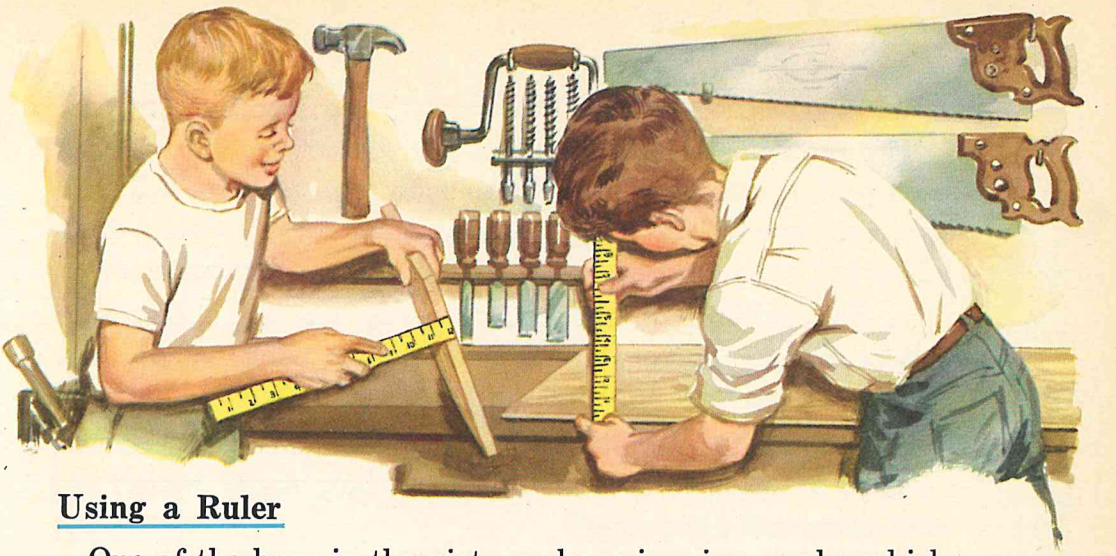
H	T	O
	9	
1	~~2~~ 10	10
~~2~~	~~0~~	~~0~~
−	7	5
1	2	5

Copy the examples below, subtract, and check. Change 1 ten to 10 ones and 1 hundred to 10 tens when you need to.

3.	764 − 51	349 − 27	176 − 63	582 − 52	**4.**	752 − 90	528 − 45	140 − 50
5.	231 − 16	983 − 56	690 − 67	162 − 58	**6.**	837 − 58	672 − 85	721 − 79
7.	418 − 34	664 − 75	269 − 76	450 − 37	175 − 84	449 − 56	221 − 18	847 − 95
8.	304 − 32	803 − 65	700 − 87	408 − 29	500 − 46	900 − 73	302 − 98	607 − 59

You will remember:

- You can change 1 hundred to 10 tens in the same way that you change 1 ten to 10 ones.

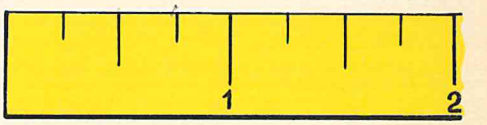


Using a Ruler

One of the boys in the picture above is using a ruler which has each inch marked into halves. The piece of plywood is $\frac{1}{2}$ inch thick. Look at a real ruler. Can you find the marks that tell you where the half inches are?

The boys wanted to measure a thinner piece of plywood. The other boy took a ruler on which the inches were marked off in fourths. The piece of plywood is $\frac{1}{4}$ inch thick.

Answer these questions:



1. How many $\frac{1}{4}$ inches equal 1 inch?
2. How many $\frac{1}{4}$ inches equal $\frac{1}{2}$ inch?
3. If the boys put the $\frac{1}{2}$ inch piece of plywood and the $\frac{1}{4}$ inch piece together, how thick would the new piece be?
4. Measure each of these nails. Tell how long each is.

5. Use your ruler to draw lines on your paper as follows:

1 inch long, $1\frac{1}{2}$ inches long, $2\frac{1}{4}$ inches long, $3\frac{3}{4}$ inches long, $4\frac{1}{2}$ inches long, 6 inches long, $6\frac{1}{4}$ inches long.

Helping at School

The problems below tell about the school paper drive. For each problem write A, S, or M to show whether you will add, subtract, or multiply to answer the question the problem asks. Then write the example for the problem and find the answer.

1. The children in the fourth grade formed 4 teams to collect paper. There were 8 children on each team. How many children were there on all four teams?

2. One team called at 30 homes, another team at 20 homes, another at 35, and another at 24. At how many homes did the teams call altogether?

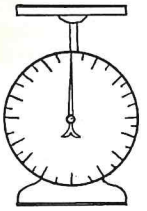
3. Mark's team collected 69 pounds of paper on Monday, 9 pounds on Tuesday, and 75 pounds on Wednesday. How much did they collect in 3 days?

4. One bundle of old magazines weighed 43 pounds. A bundle of newspapers weighed 35 pounds. How much less did the bundle of newspapers weigh than the bundle of magazines?

5. One week the fourth grade collected 150 pounds of paper. The third grade collected 80 pounds. How much more paper did the fourth grade collect than the third grade?

6. One week the children had 4 bundles of paper. Each bundle weighed 25 pounds. How many pounds of paper did they have?

7. The next week they had 5 bundles each weighing 25 pounds. How many pounds of paper did they have that week?



8. One room raised $2.50 selling paper. Another room raised $3.75. How much did the two rooms raise in all?

9. How many pounds of paper would there be in 4 bundles, each weighing 50 pounds?

10. One Friday the fourth grade sold 225 pounds of paper. The third grade sold 168 pounds. How much more paper did the fourth grade sell than the third grade?

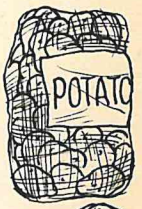
$ ¢ $ $ ¢ lbs.

Solving Problems

Read each problem. Find what it tells and what question it asks. Write A, S, or M to show whether you will add, subtract, or multiply. Then solve the problem.

1. Fred and Tom helped in their father's grocery store. They put 158 packages of white sugar and 72 packages of brown sugar on a shelf. How many packages of sugar did they put on the shelf?

2. Fred helped his father stamp the price on cans of tomatoes. Fred stamped 92 cans and his father stamped 340 cans. How many fewer cans did Fred stamp than his father did?



3. Tom and a clerk put 385 pounds of potatoes into large sacks and 80 pounds into small sacks. How many pounds of potatoes were put into sacks?

4. Myra came to the store to buy 3 cans of orange juice. At 27¢ a can, how much did the 3 cans cost?

5. Fred and Tom stamped the price on large cans of peaches. Fred stamped 90 cans and Tom stamped 150 cans. How many cans of peaches did they stamp in all?

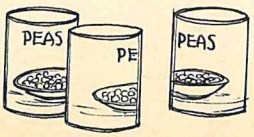
6. Tom put 144 cans of peas on a shelf. At noon there were 58 cans left. How many cans of peas had been sold?

7. There are 7 months that have 31 days each. How many days are there in these 7 months?

8. Bill bought a ball of kite string with 500 feet of string on it. He measured off 55 feet to give to Bob. How much string was left on the ball?

9. By train it is 116 miles from Herbert's home to San Francisco. By plane the distance is only 89 miles. How much farther is it by train than by airplane?

10. Jerry bought 4 cans of dog food at 14¢ each. How much did he spend for the dog food?



Buying Things

Read each problem and decide whether to add, subtract, or multiply to answer the question. Then find the answer. Be sure to use the dollar sign and the cents point in your answer.

1. Martin bought a toy jet plane that cost \$1.49 and an airplane that cost \$.95. How much did he pay for both?

2. Donald had \$3.50. He paid \$.75 for a game. How much money did he have left?

3. George bought 4 pounds of bananas for his mother at 19¢ a pound. How much did the bananas cost?

4. Mary bought a doll dress for \$1.29. The clerk gave her \$.71 in change. How much money had she given the clerk?

5. Judy bought 5 doll cutouts that were on sale at 19¢ each. How much did she pay for them?

6. Mrs. Miller bought a pound of cheese for \$.65, a pound of butter for \$.80, a loaf of bread for \$.19, and two pounds of hamburger for \$1.18. What was the total cost?

7. Ruth bought some school supplies that cost \$.57. She gave the storekeeper a dollar. How much change did she get?

8. Bob bought a softball for \$1.69 and a bat for \$.98. How much did he spend?

9. Find the cost of 2 dozen cookies at 35¢ a dozen.

Example and Problem Practice

Copy and find the answers. Check your work.

Multiply:

1.

4	8	3	9	7	4	5	6	8	9	5	4
7	5	6	2	5	8	9	5	3	4	4	6

2.

23	93	80	14	18	56	79	43	72	36
3	2	5	7	4	3	2	9	3	5

Add:

3.

246	351	960	$7.24	$5.98	935	971	887
50	78	80	.36	.69	97	29	98

4.

20	82	94	$.67	$.79	58	835	233
12	60	97	.10	.06	74	89	23
35	7	9	.26	.40	62	98	43

Subtract:

5.

579	642	385	$8.31	$4.00	705	900	700
38	92	76	.54	.85	49	27	32

Read each problem. Think: What does it tell? What does it ask? Should I add, subtract, or multiply to find the answer? Then find the answer.

6. Sally had $5.04 in her bank. She spent $.89 for a book. How much money does Sally have now?

7. If one cupcake costs 5¢, how much will you have to pay for 9 of them?

8. Mrs. Day bought Tom a scarf for $.89, a pair of socks for $.49, and a T shirt for $.98. What was the total cost?

9. By driving at a reasonable speed, Mr. Smith can drive 23 miles on a gallon of gas. At that rate, how far can he drive on 7 gallons?

Review and Practice

Find the answer for each example below. Check each answer.

Add:

1.

4	8	5	63	98	46	20	671	954
9	7	80	8	9	53	83	42	96

2.

3	43	7	8	32	70	38	951	$.73
8	2	59	7	41	23	22	28	.09
6	2	6	89	15	90	46	82	.60

Subtract:

3.

17	15	49	46	89	142	277	847
9	8	3	8	45	35	63	38

Multiply:

4.

6	3	9	4	3	6	4	5	4	7	9	7
5	5	3	7	8	3	9	5	6	4	5	3

5.

23	36	38	71	21	84	76	29	37	49
3	2	4	5	3	4	2	5	2	3

Solve these problems:

6. The boys sold tickets for the school circus. Ralph sold 9, Tom sold 5, and Donald sold 6. How many tickets did these boys sell in all?

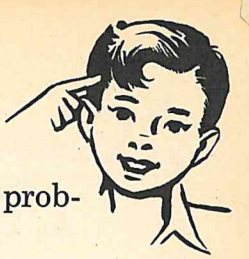
7. Jack needs 36 stamps to fill a page in his stamp book. He has 9 stamps. How many more stamps does he need?

8. James put 8 snapshots on each page in his album. How many pictures did he need for 5 pages?

9. Barbara's mother bought 2 pounds of sugar. How many ounces is that? (Remember 1 pound = 16 ounces.)

10. Ralph's father drove 97 miles in the morning and 275 miles in the afternoon. How far did he drive that day?

11. What is the difference between $3.75 and $5.21?



To Help You Remember

The page numbers after the questions, examples, and problems show you where to turn if you need help.

▶ *To think and talk about:*

1. Give the answers for the examples in the next row as rapidly as you can do so. (46)

4	5	8	2	8	6	5	5	5	1
×7	×6	×3	×9	×4	×4	×7	×3	×1	×4

2. What kind of fact is this: $3 \times 6 = 18$? What is each number in the fact called? (46)

3. Tell how you decide whether you should add, subtract, or multiply to solve a problem. (50)

Show how to find the answer for each of these examples:

4. 21 ×2 (48)

5. 52 ×3 (48)

6. 27 ×3 (49)

7. 65 ×4 (49)

8. 528 +97 (51)

9. 917 +94 (51)

10. 643 −56 (52)

11. 400 −26 (52)

▶ *To think about and write:*

Copy these examples and find the answers. Check your work:

1. 271 −74 (52)

2. 427 −42 (52)

3. 97 ×4 (49)

4. $.96 +.37 (34)

5. 463 52 +71 (33)

6. 416 28 +37 (51)

7. 982 43 +61 (51)

8. 906 77 +93 (51)

Solve these problems:

9. How many children can ride in 5 school buses when 38 children ride in each bus? (49)

10. John has $4.75. His sister has $.95. How much more money has John than his sister? (52)

Testing Yourself

Find the answer to each of the addition, subtraction, and multiplication examples below.

Add:

1.

9	2	27	95	37	124	149	954	$9.37
6	7	5	8	42	92	23	76	.45

2.

4	6	67	7	54	65	27	434	$.23
8	1	2	85	11	22	338	46	.35
7	52	9	8	33	271	15	53	.75

Subtract:

3.

15	16	5	50	68	244	464	770	$3.02
6	9	4	6	54	38	73	86	.69

Multiply:

4.

7	8	5	8	5	4	9	5	9	6	4	5
2	4	8	3	9	4	5	6	2	4	3	5

5.

32	43	26	18	54	72	62	93	61	25
4	2	3	5	5	4	3	5	6	7

Solve these problems:

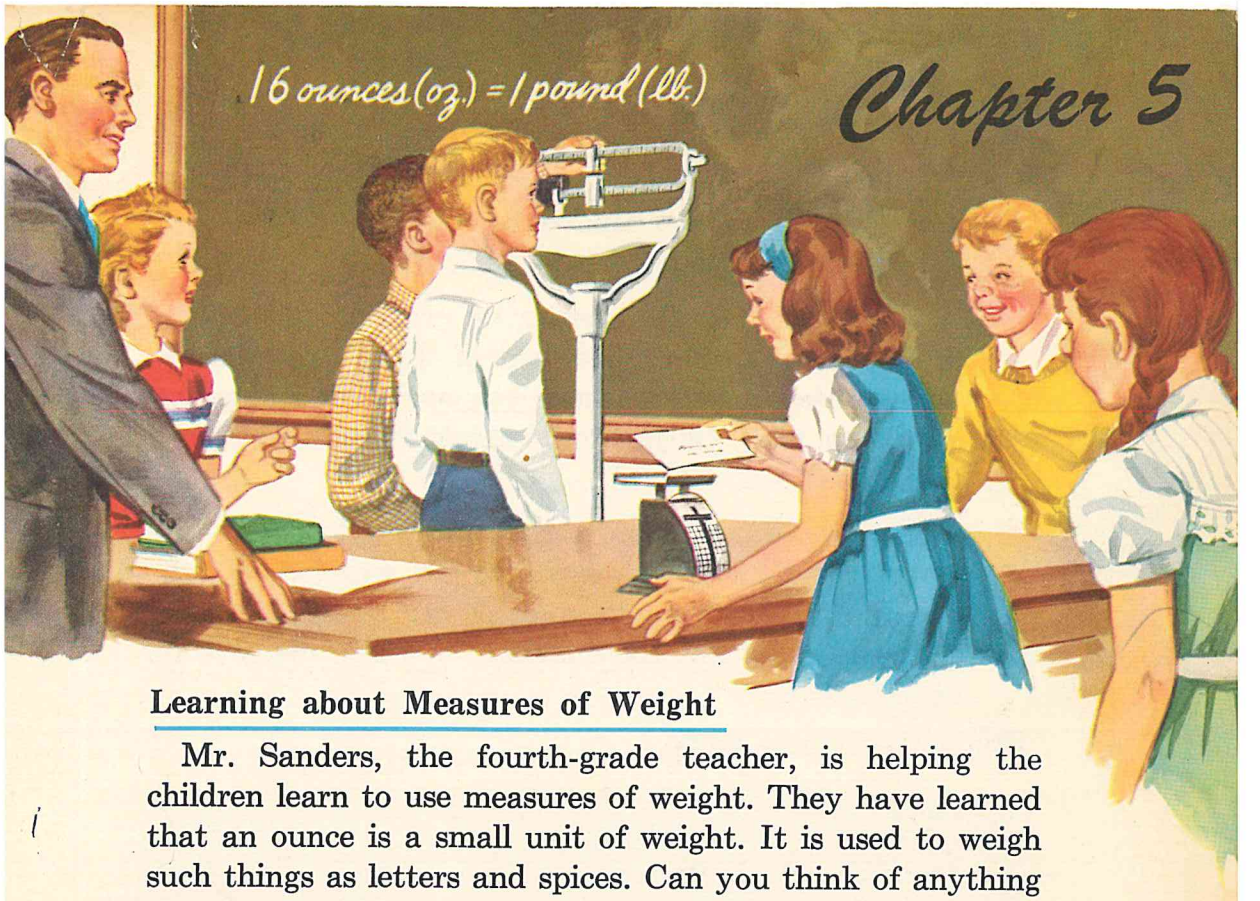
6. Each of 6 girls sold 4 tickets for the school play. How many tickets did the 6 girls sell?

7. Mary's mother bought her a dress for $4.95 and a pair of gloves for $.99. How much did she spend?

8. The milkman left 80 quarts of milk at one store, 36 quarts at another store, and 48 quarts at another. How many quarts did he deliver at these stores altogether?

9. A sweater was priced at $2.35. The price was reduced $.95 for a sale. What was the sale price of the sweater?

10. Jane weighs 68 pounds. Her father weighs 3 times as much as Jane. How much does her father weigh?



Learning about Measures of Weight

Mr. Sanders, the fourth-grade teacher, is helping the children learn to use measures of weight. They have learned that an ounce is a small unit of weight. It is used to weigh such things as letters and spices. Can you think of anything else that would be weighed by ounces?

The children have learned that a pound is a larger unit of weight than an ounce. It is used to weigh groceries or persons. What other things are weighed by pounds?

Remember this:

16 ounces (oz.) = 1 pound (lb.)

1. Perhaps someone can bring a kitchen scale to school if your school doesn't have a small scale. Look around the room for small things to weigh. Decide about how much you think each thing weighs and then weigh it. Keep a record on the board of the weights guessed and the correct weights.

2. If you have a scale at school for weighing persons, guess the weight of some members of the class, then weigh them. How well did you guess?

Reviewing Division

1. Jane's mother made 6 sandwiches and put 2 into each lunch bag. How many lunch bags did she use?

You could find the answer by counting by 2's to 6, like this: 2, 4, 6. You would know that Jane's mother used 3 bags because you said three numbers as you counted. Or you could think of the multiplication fact $3 \times 2 = 6$.

The best way to answer the question in the problem is to *divide*. The example to write is $6 \div 2$, or $2\overline{)6}$. Either example is read, *six divided by two*. Both examples ask the question: 6 = how many × 2, or ? × 2 = 6.

Study these three facts:

2 Addend		
2 Addend	2 Multiplicand	3 Quotient
+2 Addend	×3 Multiplier	Divisor $2\overline{)6}$ Dividend
6 Sum	6 Product	

The *addition* fact shows you that $2 + 2 + 2 = 6$.
The *multiplication* fact shows you that $3 \times 2 = 6$.
The *division* fact shows you that $6 = 3 \times 2$, or $6 \div 2 = 3$.

In the *division* example shown above, 6 is the *dividend*, 2 is the *divisor*, and 3 is the *quotient*.

You can see that the *dividend* in the division fact is like the *product* in the multiplication fact and like the *sum* in the addition fact. Each tells *how many in all*.

Find the answer for each division example below.

2. $2\overline{)8}$ $2\overline{)4}$ $3\overline{)6}$ $3\overline{)9}$ $5\overline{)10}$ $4\overline{)16}$ $3\overline{)15}$ $2\overline{)6}$

3. $3\overline{)21}$ $4\overline{)8}$ $2\overline{)16}$ $5\overline{)25}$ $3\overline{)27}$ $2\overline{)12}$ $4\overline{)20}$ $5\overline{)35}$

4. $3\overline{)3}$ $2\overline{)18}$ $3\overline{)18}$ $4\overline{)28}$ $5\overline{)30}$ $4\overline{)24}$ $5\overline{)15}$ $4\overline{)32}$

Reviewing Division Facts

You know that you can use multiplication facts to help you learn and remember the division facts.

1. Look at this example: $4\overline{)8}$. It asks the question, 8 = how many groups of 4, 8 = ? × 4, or 8 ÷ 4 = ?. Answer the question by thinking: 2 × 4 = 8. Since 2 × 4 = 8, then 8 = 2 × 4 and 8 ÷ 4 = 2.

$$\begin{array}{r} 4 \\ \times 2 \\ \hline 8 \end{array} \qquad 4\overline{)8}\,2$$

For each pair of examples below, think what question the division example asks. Then use the multiplication examples to find the answer for the division examples.

2. $\begin{array}{r} 2 \\ \times 3 \\ \hline 6 \end{array}$ $2\overline{)6}$ $\quad \begin{array}{r} 3 \\ \times 3 \\ \hline 9 \end{array}$ $3\overline{)9}$ $\quad \begin{array}{r} 3 \\ \times 1 \\ \hline 3 \end{array}$ $3\overline{)3}$ $\quad \begin{array}{r} 2 \\ \times 6 \\ \hline 12 \end{array}$ $2\overline{)12}$

3. $\begin{array}{r} 3 \\ \times 2 \\ \hline 6 \end{array}$ $3\overline{)6}$ $\quad \begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array}$ $2\overline{)8}$ $\quad \begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$ $1\overline{)4}$ $\quad \begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array}$ $4\overline{)12}$

4. $\begin{array}{r} 2 \\ \times 5 \\ \hline 10 \end{array}$ $2\overline{)10}$ $\quad \begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array}$ $5\overline{)25}$ $\quad \begin{array}{r} 3 \\ \times 5 \\ \hline 15 \end{array}$ $3\overline{)15}$ $\quad \begin{array}{r} 5 \\ \times 3 \\ \hline 15 \end{array}$ $5\overline{)15}$

5. $\begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array}$ $2\overline{)16}$ $\quad \begin{array}{r} 5 \\ \times 9 \\ \hline 45 \end{array}$ $5\overline{)45}$ $\quad \begin{array}{r} 3 \\ \times 6 \\ \hline 18 \end{array}$ $3\overline{)18}$ $\quad \begin{array}{r} 7 \\ \times 3 \\ \hline 21 \end{array}$ $7\overline{)21}$

Copy the examples below, divide and check. *To check your answer in division, multiply the divisor by the quotient.*

6. $6\overline{)12}$ $\quad 4\overline{)36}$ $\quad 2\overline{)14}$ $\quad 5\overline{)30}$ $\quad 2\overline{)18}$ $\quad 6\overline{)24}$ $\quad 2\overline{)2}$ $\quad 4\overline{)8}$

7. $4\overline{)16}$ $\quad 5\overline{)10}$ $\quad 8\overline{)16}$ $\quad 7\overline{)35}$ $\quad 3\overline{)24}$ $\quad 7\overline{)21}$ $\quad 4\overline{)32}$ $\quad 3\overline{)18}$

8. $3\overline{)27}$ $\quad 5\overline{)5}$ $\quad 4\overline{)28}$ $\quad 9\overline{)18}$ $\quad 7\overline{)14}$ $\quad 5\overline{)15}$ $\quad 6\overline{)18}$ $\quad 5\overline{)20}$

9. $3\overline{)12}$ $\quad 7\overline{)28}$ $\quad 8\overline{)32}$ $\quad 6\overline{)30}$ $\quad 8\overline{)24}$ $\quad 5\overline{)40}$ $\quad 9\overline{)36}$ $\quad 4\overline{)24}$

Using Division to Solve Problems

1. Jane is having a party. She has 12 apples. She wants to give 2 apples to each girl. To how many girls can she give apples?

The problem *tells* you: Jane has 12 apples (*how many in all*). It also *tells* you: She wants to give 2 apples to each girl (*how many in each equal group*). Then it *asks:* To how many girls can Jane give 2 apples (*how many equal groups*)?

Study the example below. To find the answer, divide 12 by 2. $12 \div 2 = 6$. Jane could give 2 apples to each of 6 girls.

Tells how many in each equal group →	$2\overline{)12}$ 6	← Tells how many groups ← Tells how many in all

2. Dan had a board 12 feet long. He cut it into pieces each 3 feet long. How many pieces did he have?

Does the problem tell how many feet of board in all? Does it tell how many feet in each equal piece? Does it ask how many equal pieces? What is the answer? $12 \div 3 = ?$

Find the answer for each of these problems:

3. Dick spent 18¢ for 3¢ stamps. How many did he buy?

4. Jack had 12 boards. He needs 4 for each birdhouse he builds. How many birdhouses can he build?

You will remember:

- You *divide* to find *how many equal groups or pieces.*

Practice with Division Facts

Find the answer to each example below. Use the multiplication facts to find the answers if you need to do so.

1.	$2\overline{)10}$	$2\overline{)12}$	$5\overline{)5}$	$2\overline{)14}$	$2\overline{)16}$	$2\overline{)18}$	$3\overline{)18}$	$9\overline{)27}$
2.	$4\overline{)12}$	$5\overline{)20}$	$1\overline{)5}$	$5\overline{)30}$	$4\overline{)8}$	$3\overline{)9}$	$6\overline{)18}$	$7\overline{)28}$
3.	$3\overline{)6}$	$5\overline{)15}$	$4\overline{)20}$	$3\overline{)3}$	$6\overline{)12}$	$2\overline{)4}$	$2\overline{)6}$	$5\overline{)35}$
4.	$7\overline{)28}$	$4\overline{)4}$	$4\overline{)24}$	$4\overline{)16}$	$2\overline{)8}$	$3\overline{)27}$	$3\overline{)21}$	$8\overline{)24}$
5.	$9\overline{)36}$	$5\overline{)35}$	$1\overline{)3}$	$4\overline{)32}$	$4\overline{)28}$	$5\overline{)25}$	$8\overline{)40}$	$2\overline{)16}$
6.	$9\overline{)27}$	$7\overline{)21}$	$3\overline{)12}$	$2\overline{)2}$	$6\overline{)24}$	$7\overline{)35}$	$8\overline{)32}$	$4\overline{)28}$
7.	$3\overline{)24}$	$1\overline{)4}$	$4\overline{)36}$	$5\overline{)40}$	$6\overline{)30}$	$5\overline{)10}$	$9\overline{)45}$	$7\overline{)21}$
8.	$3\overline{)15}$	$7\overline{)14}$	$1\overline{)2}$	$9\overline{)18}$	$8\overline{)24}$	$8\overline{)16}$	$5\overline{)45}$	$5\overline{)40}$

If you missed the answers to any of these examples, make practice cards for them. Practice until you can give each answer quickly.

What number belongs in each place where you see a question mark? Copy, and write the missing numbers.

9.	$4 = ? \times 2$	$18 = ? \times 3$	$21 = ? \times 3$	$24 = ? \times 3$
10.	$4 = ? \times 4$	$25 = ? \times 5$	$18 = ? \times 6$	$27 = ? \times 9$
11.	$20 = ? \times 5$	$35 = ? \times 7$	$36 = ? \times 9$	$45 = ? \times 9$
12.	$12 = ? \times 2$	$14 = ? \times 7$	$45 = ? \times 5$	$16 = ? \times 8$
13.	$9 = ? \times 3$	$24 = ? \times 8$	$32 = ? \times 4$	$15 = ? \times 3$
14.	$36 = ? \times 4$	$18 = ? \times 9$	$40 = ? \times 8$	$21 = ? \times 7$
15.	$27 = ? \times 3$	$28 = ? \times 7$	$16 = ? \times 2$	$20 = ? \times 4$
16.	$35 = ? \times 5$	$24 = ? \times 4$	$30 = ? \times 6$	$32 = ? \times 8$

More about Division Problems

1. There will be 20 children at Flora's party. She will seat them at 5 tables with the same number at each table.

How many children will sit at each table?

The problem *tells* you that there will be 20 children at Flora's party (*how many in all*). It also *tells* you that they will sit at 5 tables (*how many equal groups*). Then the problem *asks:* How many girls will be at each table (*how many in each equal group*)?

Study the example below. To find the answer, divide 20 by 5. $20 \div 5 = 4$. There will be 4 girls at each table.

Tells how many equal groups →	$5\overline{)20}$	← Tells how many in each group ← Tells how many in all

2. Betty put 12 cookies into a box. She put them in 2 equal rows. How many cookies were there in each row?

Does the problem tell how many cookies in all? Does it tell how many equal rows of cookies? Does it ask how many in each equal row? How would you find the answer? $12 \div 2 = ?$

Find the answer for each problem below.

3. Tom had 15 pigeons. He wanted to put the same number into each of 3 cages. How many should be put into each cage?

4. Bill set out 24 tomato plants in 3 equal rows. How many plants did he leave in each row?

5. Ronald paid 40¢ for 8 apples. How much did each apple cost?

6. Peggy wanted to cut a piece of ribbon 12 feet long into 4 equal pieces. How long should each piece be?

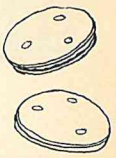
You will remember:

- You *divide* to find *how many in each equal group or piece.*

Solving Problems

Read each problem. On your paper write A, S, M, or D to show whether you should add, subtract, multiply or divide to solve the problem. Then find the answer. Remember:

If the problem question means:	*Then do this:*
> Find how many in all	Add
> Find the difference	Subtract
> Find how many in all of the equal groups	Multiply
> Find how many equal groups > Find how many in each equal group	Divide



1. Ted's father weighs 183 pounds. Ted weighs 78 pounds. How much less does Ted weigh than his father?

2. Myra wants to put 24 cookies into a box in 4 equal rows. How many cookies should she put in each row?

3. When 28 fourth graders go to the library, how many tables will they use if 4 children sit at each table?

4. The program committee bought 5 jars of paste at 8¢ a jar. How much did they pay for the paste?

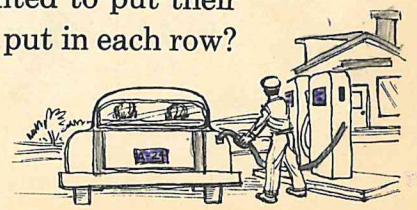
5. Ralph's father bought 45 gallons of gasoline one month, 65 gallons the next month, and 38 gallons the third month. How many gallons of gasoline did he buy in the three months?

6. If I buy groceries that cost $3.27, how much change should I get from $5.00?

7. Ray paid 79¢ for a ball. Then he had $1.39 left. How much money did he have before he bought the ball?

8. At a speed of 35 miles an hour, how far will an automobile travel in 7 hours?

9. The 35 children in the fourth grade wanted to put their desks in 7 rows. How many desks should they put in each row?



Learning about Dry Measure

At a fruit stand or a roadside market small fruits and berries are often sold in pint or quart boxes. Sometimes peck or bushel measures are used for onions, apples, tomatoes, or potatoes.

Pints, quarts, pecks, and bushels are units of *dry measure.*

1. Tell about times when you have seen fruits or vegetables for sale in pint, quart, peck, or bushel measures.

2. Which of these things might be sold by *dry measure*?

milk	strawberries	apples	peaches
potatoes	oil	blueberries	string beans
onions	beans	gasoline	tomatoes

This is the table of *dry measure:*

2 pints (pt.) = 1 quart (qt.)
8 quarts = 1 peck (pk.)
4 pecks = 1 bushel (bu.)

3. Which measure holds more: A quart or a pint? A bushel or a peck? A pint or a bushel? A peck or a quart?

Tell how you would find each answer below. Then copy and write the missing numbers.

4. 2 quarts = ? pints — 8 pints = ? quarts

5. 2 pecks = ? quarts — 16 quarts = ? pecks

6. 3 bushels = ? pecks — 12 pecks = ? bushels

Making Change

1. Joan bought a basket of grapes for 69¢. She gave the clerk 1 dollar. As he gave her the change, he said, "Sixty-nine, seventy, seventy-five, one dollar." Joan looked at the coins in her hand. She had 1 cent, 1 nickel, and 1 quarter. Do you see that the clerk started with the cost of the grapes and added each time he gave Joan a coin until he had reached one dollar?

2. Tom bought a melon for 22¢. He gave the clerk 50¢. The clerk gave him his change and said, "Twenty-two, twenty-five, thirty, forty, fifty." How many pennies did the clerk give Tom before he said, "Twenty-five?" How many nickels and how many dimes did Tom get? Can you think of other change the clerk could have given Tom?

3. Mary bought a dozen oranges for 45¢. She gave the clerk 1 dollar. What coins will he give Mary and what will he say as he gives her the change?

4. Jim bought a can of peas for 18¢ and gave the clerk 1 dollar. Can you tell what the clerk did and said?

5. Patsy gave the clerk 50¢ for a can of peaches that cost 35¢. What should the clerk do and say?

6. Grace bought a can of peas for 18¢ and gave the clerk 50¢. What will the clerk say as he gives her the change?

Adding Three-Place Numbers

1. Jane and her mother took a trip by airplane. They flew 324 miles. Coming home they traveled 465 miles by train. How many miles did they travel in all?

You see that both of the addends in the example for the problem are three-place numbers. To find the answer you add the ones, add the tens, and add the hundreds. You add hundreds in the same way that you add tens and ones. What is the answer?

H	T	O
3	2	4
+4	6	5
7	8	9

Copy these examples, add, and check. Remember, change 10 ones to 1 ten, 10 tens to 1 hundred, and 10 hundreds to 1 thousand when you need to do so.

2.	845	616	181	793	359	568	236	768
	130	743	424	852	506	917	698	265
3.	659	469	947	782	375	996	999	658
	564	876	683	218	959	435	237	573
4.	722	843	632	197	395	476	882	856
	613	751	513	847	468	725	574	144

5. Add \$1.29, \$2.50, and \$1.49.

First add the *cents*. Change 10 cents to 1 dime and add it to the dimes.

Then add the *dimes*. Change 10 dimes to 1 dollar and add it to the dollars.

Then add the *dollars*. What is the answer?

	1	1
	\$1.29	
	2.50	
+	1.49	
	\$5.28	

6. Copy the examples below. Add and check. When you add the money numbers, be sure to write the dollar signs and cents points in their correct places.

			600	541	705	350
\$2.93	\$4.39	\$1.27	825	700	219	407
2.30	3.08	1.96	760	253	321	189
1.34	2.17	5.00	403	392	648	860

Subtracting Three-Place Numbers

1. John's father bought a new car. After he has driven it 500 miles, he will take it to the dealer for a checkup. He has driven it 287 miles. How much farther can he drive before the checkup?

H	T	O
	9	
4	~~1~~0	10
~~5~~	Ø	Ø
−2	8	7
2	1	3

Study the example for the problem. You cannot subtract 7 ones from 0 ones, and there are no tens to change to ones. First you will have to change 1 hundred to 10 tens and then change 1 of the tens to 10 ones. This changes the minuend to 4 hundreds, 9 tens, and 10 ones. Then it is easy to subtract. You subtract hundreds in the same way that you subtract ones or tens. What is the answer?

2. If John bought a ball for $1.25 and gave the clerk $2.00, how much change should he receive?

$$\begin{array}{r} \$2.00 \\ -1.25 \\ \hline \$\ .75 \end{array}$$

Money numbers are subtracted like other numbers. You must, however, remember to use the dollar sign and the cents point correctly.

Study each completed example below. Then copy the examples in the row beside it and subtract.

628 − 437 = 191	**3.** 979 − 496	324 − 133	568 − 375	814 − 353	726 − 483	$5.35 − 2.90
597 − 338 = 259	**4.** 645 − 237	476 − 328	594 − 365	772 − 336	360 − 154	$5.85 − 2.68
560 − 267 = 293	**5.** 325 − 136	745 − 396	970 − 485	614 − 356	521 − 472	$4.25 − 2.98
403 − 189 = 214	**6.** 607 − 289	504 − 325	800 − 261	503 − 276	907 − 488	$5.00 − 2.75

Remembering When Adding or Subtracting

1. Study example A below. What do the small helping figures show? You can remember these numbers without writing them and find the answer as in example B.

A		B	
1 1			
387		387	
+265		+265	
652		652	

C		D	
9			
5 10 10			
ØØØ		600	
−147		−147	
453		453	

2. Study example C above. What do the small helping figures show? You can remember these changes without writing new numbers. Find the answer as in example D.

Copy the examples in rows 3 and 4, add and check. When you need to change 10 ones to 1 ten, or 10 tens to 1 hundred, do not write helping figures.

3.	327	292	175	764	35	604	109	345
	128	425	67	423	268	328	503	297
4.	40	163	585	296	192	657	231	203
	165	24	9	124	241	216	102	605
	72	163	613	372	346	10	302	309

Copy the examples below and subtract. When you need to change 1 ten to 10 ones, or 1 hundred to 10 tens, do so without writing new figures. Check each answer.

5.	264	800	475	354	421	612	213	836
	89	576	127	91	275	349	82	678
6.	663	827	946	703	434	520	523	946
	187	239	893	326	176	485	345	938
7.	$8.84	$4.73	$9.35	$4.10	$2.02	$7.42	$5.58	
	1.96	.76	1.63	1.17	1.84	1.63	1.79	

A School Election

The children in grades four to eight hold an election each year to choose members and officers of the School Council.

The ballot used in the fourth grade room was as follows:

For President (Vote for one)

- [ ] Henry Brown, eighth grade
- [ ] Vesta Smith, seventh grade

For Secretary (Vote for one)

- [ ] Margaret Jones, eighth grade
- [ ] Lois Wilson, sixth grade

For Treasurer (Vote for one)

- [ ] William Olson, seventh grade
- [ ] Doris Waller, eighth grade

For Council Members from fourth grade (Vote for two)

- [ ] Herbert Hansen
- [ ] Virgil Rogers
- [ ] Nancy Stillman

1. Henry Brown got 198 votes for President and Vesta Smith got 114. Who was elected? How many pupils voted?

2. Lois Wilson got 169 votes for Secretary. There were 312 votes. How many votes did Margaret Jones get?

3. For Treasurer, William Olson got 175 votes and Doris Waller got 137. William was how many votes ahead of Doris?

4. In the fourth grade, 36 children voted for their council members. Herbert Hansen got 33 votes, Virgil Rogers 17 votes, and Nancy Stillman 22 votes. Which two were elected? How many more votes did Nancy get than Virgil?

5. There are 321 children in the five grades that held the election. All of the 312 children who were present that day voted. How many were absent on election day?

Review and Practice

Find the answer to each example below. Check your answers.

Add down. To check, add up.

1.	74	5	86	4	42	549	590	$ .47	$1.89
	35	6	20	67	3	275	708	2.73	2.68
	12	3	13	16	26	31	400	5.64	3.74
	85	2	65	18	34	807	847	.65	.57

Subtract. To check, add the difference to the subtrahend.

2.	92	70	25	667	400	702	$4.29	$3.42
	8	9	18	49	16	189	3.47	1.64

Multiply. To check, multiply again.

3.	20	65	43	75	36	15	69	11	53	22
	5	3	2	4	3	4	2	5	3	5

Divide. To check, multiply the divisor by the quotient.

4.	$2\overline{)10}$	$5\overline{)40}$	$6\overline{)18}$	$5\overline{)20}$	$3\overline{)27}$	$4\overline{)28}$	$8\overline{)32}$	$4\overline{)24}$
5.	$7\overline{)21}$	$9\overline{)27}$	$7\overline{)28}$	$8\overline{)24}$	$9\overline{)36}$	$6\overline{)30}$	$3\overline{)18}$	$2\overline{)14}$

For each problem write A, S, M, or D to show whether you will add, subtract or multiply, or divide. Then find the answer.

6. Find the sum of 8, 27, 4, 19.

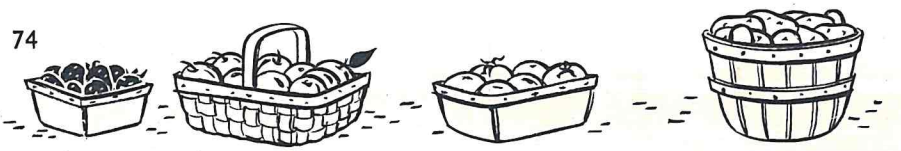
7. Find the difference between $1.25 and $.84.

8. If a ribbon a yard long is cut into 4 equal pieces, how long is each piece? (1 yard = 36 inches)

9. How many degrees difference is there between the freezing point (32°) and the boiling point (212°) of water?

10. If 2 pecks of berries are put into quart boxes, how many boxes will be filled? (1 peck = 8 quarts)

11. If there are 5 days in a school week, how many days are there in a school month of 4 weeks?



To Help You Remember

The page numbers after the questions, examples, and problems tell you where to turn for help if you need it.

▶ *To think and talk about:*

1. Below are four arithmetic facts. Tell what kind of fact each is. Then tell what each number in each fact is called, and what the sign asks you to do.

A $\begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array}$ (14) B $\begin{array}{r} 8 \\ -4 \\ \hline 4 \end{array}$ (17) C $\begin{array}{r} 4 \\ \times 2 \\ \hline 8 \end{array}$ (46) D $4\overline{)8}$ (62)

2. Tell how to check each answer above. (22, 24, 48, 63)

3. Tell how you could use this addition fact to find the answer for each example beside it. (62) (17)

$\begin{array}{r} 5 \\ +5 \\ \hline 10 \end{array}$ $\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$ $\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$ $5\overline{)10}$

4. Tell how you would count the change if you sold something for 52¢ and were handed a dollar. (69)

▶ *To think about and write:*

Copy, and write the answers. Check your work.

1. $3\overline{)27}$ $4\overline{)36}$ $2\overline{)14}$ $5\overline{)45}$ $4\overline{)28}$ $3\overline{)21}$ $6\overline{)18}$ (63)

2. $\begin{array}{r} 608 \\ +499 \\ \hline \end{array}$ (51) **3.** $\begin{array}{r} 800 \\ -527 \\ \hline \end{array}$ (71) **4.** $\begin{array}{r} 38 \\ \times 5 \\ \hline \end{array}$ (49) **5.** $\begin{array}{r} 40 \\ \times 3 \\ \hline \end{array}$ (48)

For each problem write A, S, M, or D and find the answer.

6. One morning the temperature at Jerry's home was 34°. At noon it was 52°. Was it warmer or colder at noon than in the morning? How much? (36)

7. How many quarts of oil are equal to 5 gallons of oil? (41)

Testing Yourself

Find the answer to each example below.

Add and check:

1.

37	24	6	77	325	684	$4.80	$1.20
96	60	18	25	86	527	3.67	9.45
8	5	93	46	437	345	.45	6.72
44	83	35	29	542	428	.87	4.37

Subtract and check:

2.

65	90	44	384	501	684	$6.72	$6.00
8	8	17	57	28	392	1.84	3.67

Multiply and check:

3.

81	32	63	24	75	44	56	42	23	32
5	2	4	4	3	5	3	8	7	6

Divide and check:

4. $3\overline{)21}$ $9\overline{)45}$ $4\overline{)36}$ $7\overline{)35}$ $8\overline{)32}$ $4\overline{)32}$ $8\overline{)16}$ $5\overline{)30}$

For each problem write A, S, M, or D and find the answer.

5. The Sunday School was having a picnic. If 7 of the girls had the job of making 28 sandwiches, how many sandwiches should each girl make?

6. Ray and his father made 27 fence pickets one evening. At this rate how many can they make in 3 evenings?

7. At the school store Jane bought a book for $1.25, a notebook for $.25, and some paper for $.10. How much did she spend altogether?

8. Ann and her mother measured their heights. Ann is 47 inches tall. Her mother is 62 inches tall. What is the difference between their heights?

9. Jim spends 19¢ for carfare and milk each day. How much will he spend in 5 days?

Chapter 6

Using 6 in Multiplication

1. In the picture above you can see 6 cartons of eggs. There are 6 eggs in each carton. There are 36 eggs in all, for $6 + 6 + 6 + 6 + 6 + 6 = 36$ or $6 \times 6 = 36$. Now find the number of cookies in each box of cookies shown in the picture.

You already know some of the multiplication facts for 6. (See page 46.) Here are the other facts for 6:

$1 \times 6 = 6$	$6 \times 1 = 6$	$6 \times 6 = 36$	$6 \times 7 = 42$	$7 \times 6 = 42$	$6 \times 8 = 48$	$8 \times 6 = 48$	$6 \times 9 = 54$	$9 \times 6 = 54$

2. Prove the answers above by adding. For example, $6 \times 7 = 42$. $7 + 7 + 7 + 7 + 7 + 7 = 42$.

3. Make practice cards for the nine multiplication facts above. Practice until you know the answers.

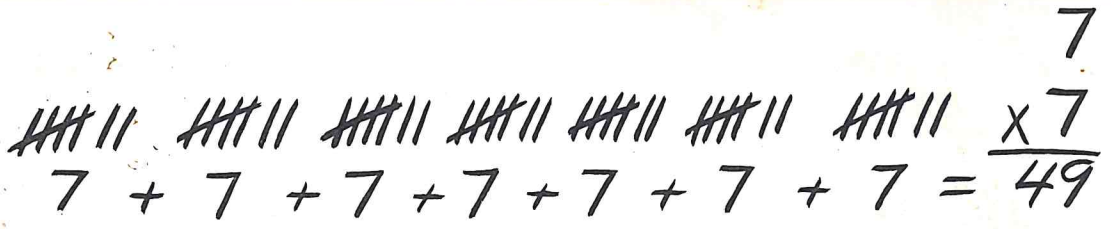
Copy the examples below and multiply.

4.

6	6	6	5	7	6	6	6	1	3	6	6
6	3	4	6	6	5	2	8	6	6	9	7

5.

2	9	4	8	6	5	8	4	3	4	3	2
6	6	6	6	1	3	2	3	8	7	9	8



Using 7 in Multiplication

Look at the picture above. Are there 7 groups of tally marks? Are there 7 tally marks in each group? $7 \times 7 = ?$ $7 + 7 + 7 + 7 + 7 + 7 + 7 = ?$ Prove that $7 \times 7 = 49$ by adding seven 7's. Prove that $7 \times 7 = 49$ by counting the tally marks.

1. Here are other multiplication facts using 7, which you may not know. Draw tally marks, or add, to prove each one.

1	7		7		7	8		7	9
×7	×1		×7		×8	×7		×9	×7
7	7		49		56	56		63	63

2. Make practice cards for the multiplication facts above. Practice until you can give each answer quickly.

Solve these problems:

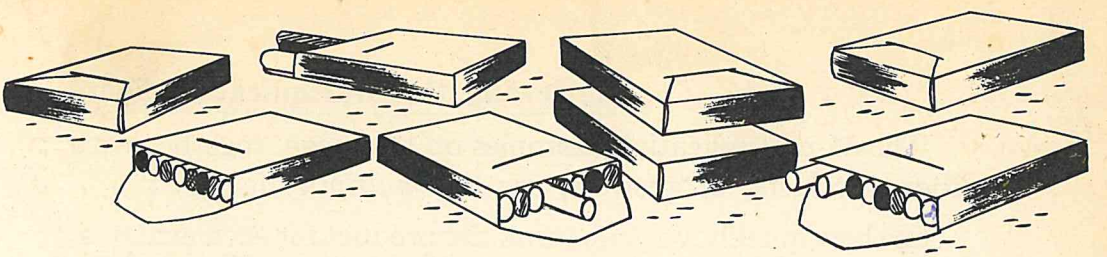
3. Tom put 7 rows of stamps in his stamp book. He put 8 stamps in each row. How many stamps did he put in the book?

4. Dick made up 9 bunches of carrots with 7 carrots in each bunch. How many carrots did he use?

5. Each one of 8 children paid 7¢ to ride on the bus. What was the total fare for all of the children?

Copy these examples and multiply:

6.	9	8	7	6	7	7	7	5	2	7	6	7
	7	7	7	7	9	6	8	6	7	4	4	2
7.	6	5	9	4	7	6	3	7	1	8	7	3
	6	7	6	7	5	8	7	3	7	6	1	6
8.	6	2	4	5	4	5	4	5	8	9	8	2
	5	5	4	3	8	8	9	9	2	5	5	9



Using 8 and 9 in Multiplication

1. Bob counted 8 boxes of crayons on the shelf. If there were 8 crayons in a box, how many crayons were there in all?

By counting by 8's or adding eight 8's, you can tell that there were 64 crayons in all. You can see that $8 \times 8 = 64$.

2. Prove the product for each multiplication fact below. Do it by adding, counting, or drawing groups of tally marks.

1	8	8	9	8	1	9	9		
×8	×1	×8	×8	×9	×9	×1	×9		
8	8	64	72	72	9	9	81		

3. Make practice cards for the multiplication facts above. Practice until you can give the answers quickly.

Think the product for each multiplication example below. Then copy the examples and write the products.

4.	7	9	9	8	8	9	9	9	8	6	4	4
	8	3	9	8	2	4	8	5	4	8	8	5
5.	8	9	8	5	9	8	6	7	8	5	5	2
	5	6	6	6	7	7	9	6	9	9	8	8
6.	8	9	8	3	4	1	6	2	7	7	3	1
	3	2	1	9	9	9	7	9	9	7	8	8

7. Learn to count by 6's, 7's, 8's, and 9's, like this:

Count by 6's: 6, 12, 18, 24, 30, 36, 42, 48, 54.
Count by 7's: 7, 14, 21, 28, 35, 42, 49, 56, 63.
Count by 8's: 8, 16, 24, 32, 40, 48, 56, 64, 72.
Count by 9's: 9, 18, 27, 36, 45, 54, 63, 72, 81.

Reviewing the Multiplication Facts

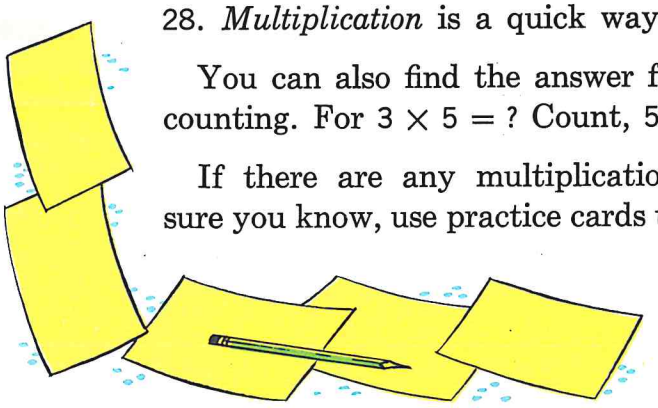
The 81 multiplication examples on this page, together with their products, or answers, are the *multiplication facts.*

See how quickly you can think the product for each example.

See how quickly you can say the answer for the examples in each row when you are asked to do so by your teacher or by the leader of your group.

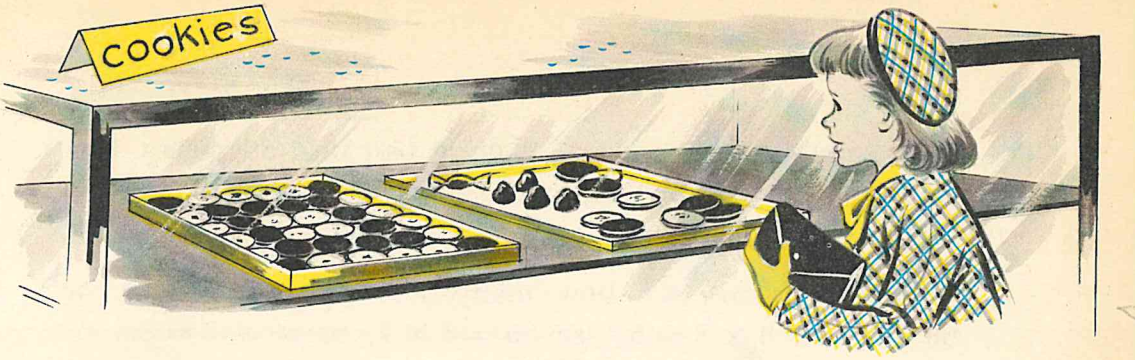
1.	5	7	3	2	1	5	7	1	4	1	1
	2	3	1	2	4	3	1	2	3	1	6
2.	6	8	3	4	3	4	6	9	1	6	3
	3	1	5	1	2	4	1	2	5	2	3
3.	2	3	2	7	9	4	5	2	1	5	8
	3	4	5	4	1	2	1	4	3	4	2
4.	2	7	6	8	6	6	7	2	6	3	5	5
	1	6	4	7	6	5	2	6	9	8	6	5
5.	6	3	4	6	2	3	2	4	7	1	7	8
	7	9	7	8	9	6	8	6	5	9	7	3
6.	7	8	1	7	4	3	5	8	2	8	9	9
	8	6	8	9	5	7	7	5	7	4	7	3
7.	9	1	8	9	8	9	4	9	5	9	5	4
	4	7	8	9	9	6	8	5	8	8	9	9

Now copy each row of examples above and write the products. Remember, if you forget the answer you can find it by adding, like this: $4 \times 7 = ?$ $7 + 7 + 7 + 7 = 28$. So $4 \times 7 = 28$. *Multiplication* is a quick way to *add equal addends.*



You can also find the answer for a multiplication fact by counting. For $3 \times 5 = ?$ Count, 5, 10, 15. $3 \times 5 = 15$

If there are any multiplication facts that you are not sure you know, use practice cards to learn them.



Using 6 in Division

1. Look at the picture above. In one box of cookies there are 6 rows of cookies, with 6 cookies in each row. How many cookies are there in that box? $6 \times 6 = ?$

2. When 36 cookies are placed in rows with 6 cookies in each row, how many rows will there be? $36 = ? \times 6$, or $36 \div 6 = ?$. Since $6 \times 6 = 36$, then $36 = 6 \times 6$, or $36 \div 6 = 6$.

3. In another box there are 7 rows of pieces of candy with 6 pieces in each row. How many pieces of candy are there in the box? $7 \times 6 = ?$

4. When 42 pieces of candy are placed in rows of 6, how many rows will there be? $42 = ? \times 6$, or $42 \div 6 = ?$. Since $7 \times 6 = 42$, then $42 = 7 \times 6$, or $42 \div 6 = 7$.

5. Here are nine new division facts. Use multiplication to show that each quotient is right.

6	1	6	7	6	8	6	9	6
$1\overline{)6}$	$6\overline{)6}$	$6\overline{)36}$	$6\overline{)42}$	$7\overline{)42}$	$6\overline{)48}$	$8\overline{)48}$	$6\overline{)54}$	$9\overline{)54}$

6. Make practice cards for the division facts above. Practice until you can give each quotient quickly.

Think the quotient for each example below. Then copy the examples and write the quotients.

7. $6\overline{)36}$ $2\overline{)12}$ $6\overline{)42}$ $8\overline{)48}$ $6\overline{)54}$ $3\overline{)18}$ $7\overline{)42}$ $6\overline{)30}$

8. $6\overline{)24}$ $6\overline{)48}$ $6\overline{)6}$ $9\overline{)54}$ $1\overline{)6}$ $4\overline{)24}$ $6\overline{)18}$ $5\overline{)30}$

Using 7 in Division

1. Ann cut the candy in a large pan into 56 pieces. She wants to put it into bags with 7 pieces in each bag. How many bags will she need?

This problem asks how many 7's = 56, $56 = ? \times 7$, or $56 \div 7 = ?$. $8 \times 7 = 56$, so $56 = 8 \times 7$, or $56 \div 7 = 8$.

2. Here are seven new division facts. Use multiplication to prove that each quotient is right.

$1\overline{)7}$ $\quad 7\overline{)7}$ $\quad 7\overline{)49}$ $\quad 7\overline{)56}$ $\quad 8\overline{)56}$ $\quad 7\overline{)63}$ $\quad 9\overline{)63}$

3. Make practice cards for the division facts above. Practice until you can give each answer quickly.

Think the answers for the examples in rows 4 and 5 below. Then copy the examples and write the answers.

4. $\times 8$ $7\overline{)56}$ $\quad \times 7$ $7\overline{)49}$ $\quad \times 9$ $7\overline{)63}$ $\quad \times 6$ $7\overline{)42}$

5. $\times 7$ $9\overline{)63}$ $\quad \times 7$ $6\overline{)42}$ $\quad \times 7$ $8\overline{)56}$ $\quad \times 9$ $6\overline{)54}$

Copy the examples in each row below and write the answers. *To check each answer, multiply the divisor by the quotient.* The product should equal the dividend.

6. $2\overline{)16}$ $\quad 5\overline{)20}$ $\quad 6\overline{)12}$ $\quad 5\overline{)15}$ $\quad 2\overline{)12}$ $\quad 4\overline{)16}$ $\quad 6\overline{)6}$ $\quad 2\overline{)10}$

7. $5\overline{)10}$ $\quad 2\overline{)8}$ $\quad 4\overline{)12}$ $\quad 5\overline{)25}$ $\quad 4\overline{)8}$ $\quad 3\overline{)9}$ $\quad 8\overline{)16}$ $\quad 3\overline{)6}$

8. $3\overline{)24}$ $\quad 6\overline{)36}$ $\quad 7\overline{)35}$ $\quad 4\overline{)28}$ $\quad 8\overline{)32}$ $\quad 6\overline{)48}$ $\quad 7\overline{)21}$ $\quad 8\overline{)24}$

9. $8\overline{)40}$ $\quad 6\overline{)30}$ $\quad 7\overline{)49}$ $\quad 9\overline{)45}$ $\quad 4\overline{)32}$ $\quad 3\overline{)27}$ $\quad 6\overline{)18}$ $\quad 4\overline{)24}$

10. $9\overline{)54}$ $\quad 3\overline{)15}$ $\quad 4\overline{)20}$ $\quad 9\overline{)36}$ $\quad 5\overline{)30}$ $\quad 5\overline{)45}$ $\quad 4\overline{)36}$ $\quad 5\overline{)40}$

11. $9\overline{)27}$ $\quad 7\overline{)7}$ $\quad 2\overline{)18}$ $\quad 6\overline{)24}$ $\quad 9\overline{)18}$ $\quad 7\overline{)14}$ $\quad 5\overline{)35}$ $\quad 7\overline{)63}$

Using 8 and 9 in Division

1. Irving has 72 marbles which he wants to divide into groups with 8 marbles in each group. How many groups of 8 marbles will he have?

This problem asks the question: 72 = how many 8's, 72 = ? × 8, or 72 ÷ 8 = ?. You know that 9 × 8 = 72, so you know that 72 = 9 × 8, or that 72 ÷ 8 = 9.

2. Here are eight new division facts. Use multiplication to prove that each quotient is right.

$$\begin{array}{llllllll} 1 & 8 & 8 & 9 & 8 & 1 & 9 & 9 \\ 8\overline{)8} & 1\overline{)8} & 8\overline{)64} & 8\overline{)72} & 9\overline{)72} & 9\overline{)9} & 1\overline{)9} & 9\overline{)81} \end{array}$$

3. Make practice cards for the division facts above and study them until you can give the answers quickly.

Think the answer to each example in the next row. Then copy the examples and write the answers.

$$\begin{array}{llllllll} 9 & & 8 & & 8 & & 9 & \\ \times 9 & 9\overline{)81} & \times 9 & 8\overline{)72} & \times 8 & 8\overline{)64} & \times 8 & 9\overline{)72} \end{array}$$

Copy the examples below and write the quotients. Check each answer by multiplying the divisor by the quotient.

4. $2\overline{)6}$ $3\overline{)21}$ $3\overline{)12}$ $2\overline{)14}$ $3\overline{)6}$ $1\overline{)5}$ $3\overline{)3}$ $2\overline{)4}$

5. $8\overline{)40}$ $9\overline{)54}$ $8\overline{)64}$ $9\overline{)72}$ $9\overline{)81}$ $8\overline{)72}$ $9\overline{)63}$ $7\overline{)56}$

6. $8\overline{)48}$ $7\overline{)63}$ $6\overline{)54}$ $7\overline{)49}$ $9\overline{)45}$ $8\overline{)32}$ $6\overline{)42}$ $7\overline{)35}$

Answer the question in each problem below.

7. Fred has 72 plants to set out. There is room for 9 plants in each row. How many rows will he have? (The problem asks 72 = ? × 9, or 72 ÷ 9 = ?)

8. Susan has 81 cookies to put into boxes. She plans to put 9 cookies in each box. How many boxes will she need?

A Candy Sale at School

The problems below are about a candy sale the children had to raise money to buy Christmas baskets. For each problem write A, S, M, or D to show whether you should add, subtract, multiply, or divide. (If you are not sure which to do, look at page 67 again.) Then write the example for the problem and find the answer.

1. Bob cut a piece of wrapping paper 24 feet long into 4 equal pieces to cover the tables. How long was each piece?

2. Judy cut 12 pictures from old magazines. She used the pictures to make posters telling about the sale. She used 4 pictures on each poster. How many posters did she make?

3. Barbara cut a piece of cardboard 28 inches long into 4 equal pieces for signs. How long was each piece?

4. Robert cut a pan of peanut brittle into 64 pieces. If he put 8 pieces into each bag, how many bags of peanut brittle did he have?

5. John had 25¢ and spent 9¢ for two candy bars. How much money did he have left?

6. Ralph's father donated 72 peppermint sticks. The girls tied them into bundles of 9 sticks each. How many bundles of peppermint sticks did they have to sell?

7. Susan sold 5 large bags of candy for 10¢ a bag. How much did she get for the 5 bags of candy?

8. There were 49 candy mints left after the sale. The 7 boys who cleaned up after the sale bought the mints. Each boy paid 5¢. How much did the boys pay altogether?

9. When each of four salesgirls counted the money they found that they had $2.67, $1.18, $1.75, and $2.43. How much money did these four girls have altogether?

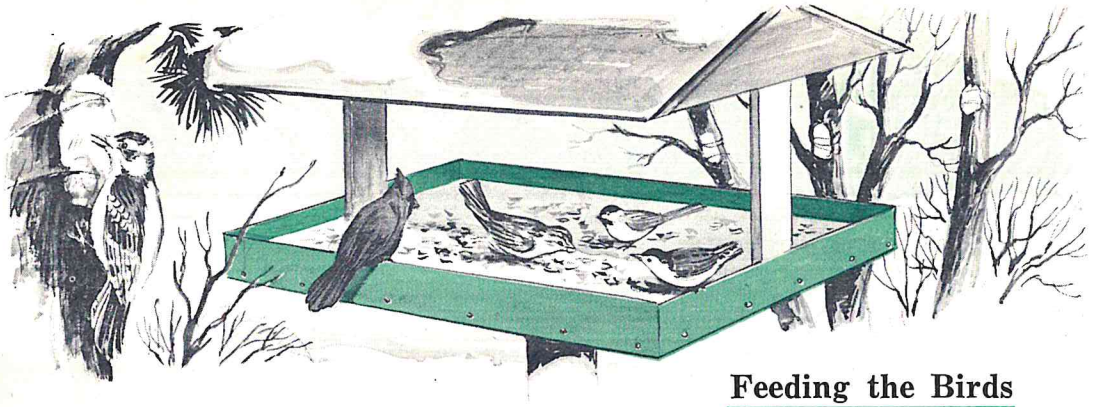
Practice on Division Facts

The 81 examples on this page, together with their answers, are the division facts. See how quickly you can say the answer to each division example in a row when you are called upon by your teacher or by the leader of your group. For the example $3\overline{)6}$, you should say, "six divided by three equals two", or you may say, "six equals two times three". If you forget a division fact, think of the related multiplication fact.

1.	$2\overline{)2}$	$4\overline{)32}$	$5\overline{)10}$	$8\overline{)8}$	$9\overline{)18}$	$8\overline{)64}$	$1\overline{)9}$	$2\overline{)8}$
2.	$6\overline{)42}$	$4\overline{)4}$	$7\overline{)42}$	$6\overline{)48}$	$3\overline{)9}$	$5\overline{)20}$	$1\overline{)7}$	$8\overline{)72}$
3.	$4\overline{)36}$	$3\overline{)3}$	$9\overline{)81}$	$4\overline{)28}$	$7\overline{)49}$	$5\overline{)30}$	$1\overline{)8}$	$3\overline{)12}$
4.	$2\overline{)18}$	$1\overline{)5}$	$9\overline{)72}$	$6\overline{)54}$	$3\overline{)21}$	$2\overline{)4}$	$4\overline{)20}$	$1\overline{)6}$
5.	$8\overline{)24}$	$1\overline{)1}$	$5\overline{)45}$	$6\overline{)12}$	$5\overline{)35}$	$1\overline{)4}$	$8\overline{)16}$	$1\overline{)2}$
6.	$2\overline{)6}$	$4\overline{)24}$	$8\overline{)32}$	$3\overline{)24}$	$9\overline{)36}$	$2\overline{)10}$	$6\overline{)6}$	$4\overline{)16}$
7.	$7\overline{)7}$	$6\overline{)36}$	$1\overline{)3}$	$5\overline{)40}$	$7\overline{)21}$	$8\overline{)40}$	$9\overline{)54}$	$7\overline{)14}$
8.	$6\overline{)18}$	$2\overline{)12}$	$5\overline{)25}$	$3\overline{)27}$	$7\overline{)56}$	$8\overline{)56}$	$6\overline{)30}$	$5\overline{)15}$
9.	$9\overline{)45}$	$3\overline{)15}$	$9\overline{)63}$	$4\overline{)12}$	$9\overline{)9}$	$7\overline{)35}$	$2\overline{)16}$	$2\overline{)14}$
10.	$7\overline{)28}$	$4\overline{)8}$	$8\overline{)48}$	$5\overline{)5}$	$9\overline{)27}$	$3\overline{)18}$	$6\overline{)24}$	$7\overline{)63}$

Now copy each row of examples above on a sheet of paper and write the answers. Check your answers for that row as the correct answers are read by the teacher or by the leader of your group.

If you missed any of the answers for the examples on this page, make practice cards for those examples. Practice until you are sure that you know those answers.



Feeding the Birds

Read each problem below to find what it tells and what question it asks. Write A, S, M, or D to show whether you add, subtract, multiply, or divide to answer the question. Then write the example for the problem and find the answer.

1. Bob was building the bird feeder shown in the picture above. He needed a strip of building paper long enough to go around the four sides of the board used for the floor. He needed 20 inches for the front and back, and 28 inches for the two sides. How long a strip did he need?

2. Bob bought a small can of paint for 28¢ and some nails for 25¢. How much did he spend for both?

3. When the feeder was finished Bob bought 15 pounds of mixed grain to feed the birds. It cost 8¢ a pound. How much did he pay for 15 pounds?

4. When Bob bought more feed, he paid only 42¢ for 7 pounds. How much a pound did he pay?

5. On the first day that he put his feeder out he saw 19 sparrows, 9 bluejays, and 3 cardinals come to eat. How many birds in all did he see?

6. On the next day he counted 35 birds at his feeder. On the third day, he counted only 19 birds. How many fewer birds did he see on the third day than on the second day?

7. Bob used 5 small cans full of feed each week. How many cans of feed would he need for 8 weeks?

Uneven Division

Sometimes when we divide, some of the dividend is left. To find the answer for such an example, we need to divide, multiply, and subtract. The examples below are of this kind.

1. Divide 9 by 2, this way:

Divide: To get the right number in the quotient, think, 9 cannot be divided evenly by 2. Try 8. $8 = 4 \times 2$. Write 4 in the quotient above the 9.

4 quotient
divisor $2\overline{)9}$ dividend
8
1 left

Multiply: $4 \times 2 = 8$. Write 8 below the 9.

Subtract to find how many are left. $9 - 8 = 1$. Write 1.

The answer is 4 and 1 left. $9 \div 2 = 4$ and 1 left.

2. Now divide 17 by 3 like this:

Divide: Think, 17 cannot be divided evenly by 3. Try 16. 16 cannot be divided evenly by 3. Try 15. $15 = 5 \times 3$. Write 5 in the quotient above the 7.

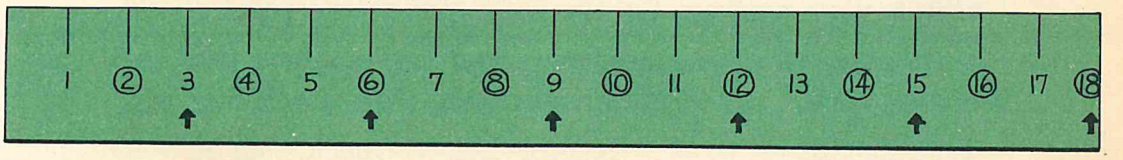
5
$3\overline{)17}$
15
2 left

Multiply: $5 \times 3 = 15$. Write 15 below 17.

Subtract: $17 - 15 = 2$. Write 2.

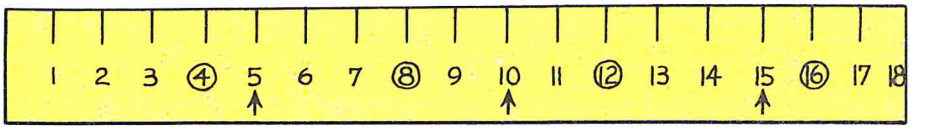
The answer is 5 and 2 left. $17 \div 3 = 5$ and 2 left.

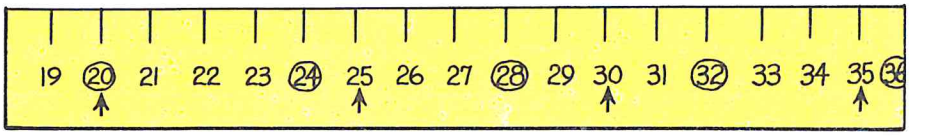
Study this picture of an 18 inch ruler. It will help you see which numbers can be divided evenly by 2 or 3. Each number with a circle around it can be divided evenly by 2. An arrow points to each number which can be divided evenly by 3.



3. Find the answer to each of these examples.

$2\overline{)7}$ $2\overline{)13}$ $2\overline{)11}$ $3\overline{)13}$ $3\overline{)10}$ $3\overline{)14}$ $3\overline{)8}$ $2\overline{)15}$





More about Uneven Division

Above is a picture of a yardstick in two parts. In the picture you can see the numbers on the yardstick. These numbers stand for inches.

Do you see the numbers with circles? Each of the numbers with circles can be divided evenly by 4.

In the following examples, the dividends cannot be divided evenly by 4. For each example in rows 1, 2, and 3 think or tell the next smaller number that can be divided evenly by 4. If you need to, use the picture at the top of the page.

1. $4\overline{)7}$ $4\overline{)9}$ $4\overline{)10}$ $4\overline{)11}$ $4\overline{)25}$ $4\overline{)22}$ $4\overline{)18}$ $4\overline{)26}$

2. $4\overline{)13}$ $4\overline{)27}$ $4\overline{)23}$ $4\overline{)17}$ $4\overline{)33}$ $4\overline{)21}$ $4\overline{)35}$ $4\overline{)37}$

3. $4\overline{)19}$ $4\overline{)34}$ $4\overline{)14}$ $4\overline{)30}$ $4\overline{)29}$ $4\overline{)15}$ $4\overline{)38}$ $4\overline{)39}$

Copy the examples in each row above and find the answers.

To check the answer to an uneven division example, multiply the divisor by the quotient and add what is left. The sum should be the same number as the dividend. For example, $11 \div 4 = 2$ and 3 left. To check: $2 \times 4 = 8$. $8 + 3 = 11$.

Check your answers for the examples in the rows above.

On the yardstick in the picture find the numbers that can be evenly divided by 5. The arrows in the picture will help you.

Find the answer to each example below. Check each answer.

4. $5\overline{)11}$ $5\overline{)27}$ $5\overline{)36}$ $5\overline{)13}$ $5\overline{)29}$ $5\overline{)32}$ $5\overline{)19}$ $5\overline{)23}$

5. $5\overline{)17}$ $5\overline{)31}$ $5\overline{)34}$ $5\overline{)33}$ $5\overline{)21}$ $5\overline{)16}$ $5\overline{)37}$ $5\overline{)44}$

Solving Uneven Division Problems

Here is an uneven division problem. Read it carefully.

1. Alice has 9 picture-book dolls. She wants to put the same number on each of 2 shelves. How many can she put on each shelf and how many will be left?

The example for solving this problem is an uneven division example. You divide 9 by 2 as shown at the right. Alice put 4 picture-book dolls on each shelf, and had 1 left.

$$\begin{array}{r} 4 \\ 2\overline{)9} \\ \underline{8} \\ 1 \end{array} \quad \text{left}$$

Solve these problems in uneven division.

2. Mr. Gray wishes to separate his 13 rabbits into pairs. How many pairs of rabbits will he have and how many rabbits will be left?

3. Jane's mother made 8 glasses of lemonade for 3 girls. If each drank the same number of glasses, how many glasses did each girl have and how many were left over?

4. Jerry had 9¢ to buy candy bars at 4¢ each. How many candy bars did he buy and how much money did he have left?

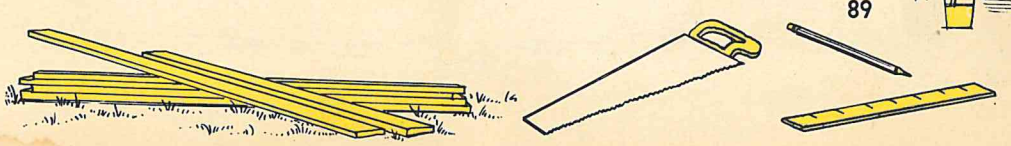
5. Julia had 17 cookies to serve to the 4 girls at her party. If each girl gets the same number of cookies, how many will each get and how many will be left?

6. John has 5 apples. He eats 2 each day. How many days will they last and how many will be left over?

7. Dick had 25¢ to spend for pencils at 4¢ each. How many pencils could he buy? How much money would be left?

8. Herbert's mother had a piece of shelf paper 27 feet long. She cut it into 5-foot lengths. How many pieces did she get and how much was left?

9. How many boards 3 feet long can Jim cut from a board 16 feet long? How many feet would be left?



Add, and check each answer:

1.

3	78	6 3	45 98	757	29		$9.52
9	49	7	76	584	438	$1.63	.46
8	86	8	13	331	516	.79	1.57

Subtract, and check each answer:

2.

68	69	84	92	756	833	$6.83	$3.82
3	59	47	4	63	634	.59	2.71

Multiply, and check each answer:

3.

23	54	18	37	27	74	66	48	52	93
6	5	7	7	6	8	3	8	6	4

Divide, and check each answer:

4. $4\overline{)36}$ $8\overline{)72}$ $9\overline{)63}$ $8\overline{)64}$ $9\overline{)36}$ $4\overline{)20}$ $7\overline{)56}$ $6\overline{)54}$

5. $5\overline{)43}$ $4\overline{)26}$ $2\overline{)17}$ $4\overline{)39}$ $3\overline{)26}$ $5\overline{)38}$ $3\overline{)25}$ $5\overline{)47}$

Solve these problems:

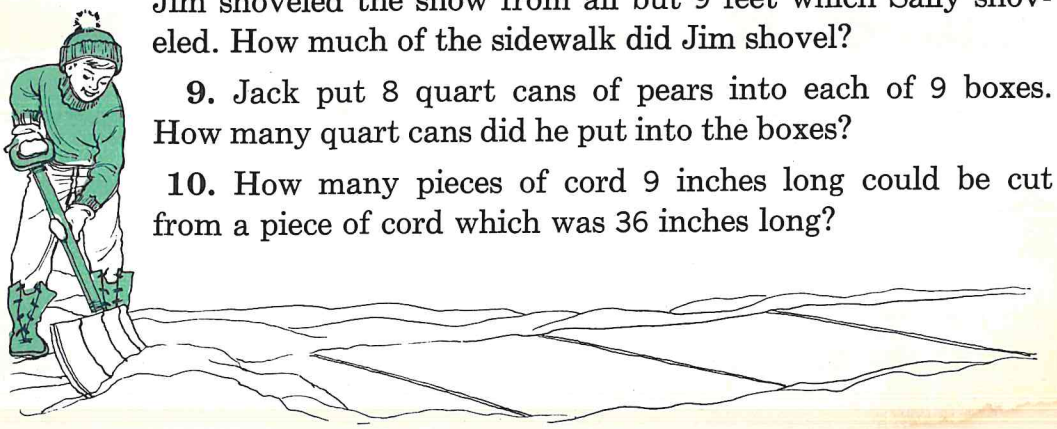
6. There are 35 children in our class. The gym teacher arranges them in groups of 4 for a game. How many groups are there and how many children are left?

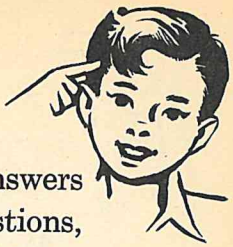
7. At the Jefferson School there were 67 children in the third grade, 69 children in the fourth, and 59 children in the fifth. How many children were there in these three grades?

8. The sidewalk in front of Jim's house is 51 feet long. Jim shoveled the snow from all but 9 feet which Sally shoveled. How much of the sidewalk did Jim shovel?

9. Jack put 8 quart cans of pears into each of 9 boxes. How many quart cans did he put into the boxes?

10. How many pieces of cord 9 inches long could be cut from a piece of cord which was 36 inches long?





To Help You Remember

Talk with the class or with your group about the answers to the questions below. The page numbers after the questions, examples, or problems tell you where to turn if you need help.

▶ *To think and talk about:*

1. If you forget the answer to the example 8×7, how can you find it? (80)

2. If you forget the answer to the example $72 \div 8$, how can you find it? (83)

3. How do you check the answer for a division example? (82) For an uneven division example? (88)

4. Explain how to make and use a practice card for the division fact at the right. (14)

$$7\overline{)42}\quad 6$$

5. Explain how you get the answer to the uneven division example $4\overline{)27}$. (87)

▶ *To think about and write:*

Copy these examples and write the answers. (80)

1.

6	8	9	6	8	7	8	9	9	8
×9	×7	×8	×7	×8	×7	×6	×7	×9	×9

2. $8 \times 6 = ?$ $\quad 6 \times 7 = ?$ $\quad 9 \times 7 = ?$ $\quad 8 \times 7 = ?$

Copy each division example below. Beside it write the multiplication example which will help you know the quotient. Then write the quotient. (81-83)

3. $6\overline{)36}$ $\quad 7\overline{)49}$ $\quad 6\overline{)48}$ $\quad 8\overline{)64}$ $\quad 9\overline{)63}$ $\quad 7\overline{)63}$ $\quad 6\overline{)54}$ $\quad 6\overline{)42}$

4. $56 \div 8 = ?$ $\quad 72 \div 9 = ?$ $\quad 56 \div 7 = ?$ $\quad 54 \div 9 = ?$

5. For each example below, find the quotient and how much of the dividend is left. Then check your answer. (87-88)

$3\overline{)19}$ $\quad 4\overline{)37}$ $\quad 2\overline{)15}$ $\quad 5\overline{)36}$ $\quad 4\overline{)27}$ $\quad 3\overline{)23}$ $\quad 5\overline{)39}$ $\quad 5\overline{)31}$

Testing Yourself

Add and check:

1.

		4	59				
4	83	6	47	867	324		$3.69
7	68	8	71	338	789	$2.88	.46
6	45	5	91	97	462	4.71	1.57

Subtract and check:

2.

28	36	36	84	905	$3.85	375	$6.62
15	17	4	7	450	1.26	36	4.13

Multiply and check:

3.

52	29	32	47	18	52	31	63	27	35
2	6	3	5	7	5	8	9	4	6

Divide and check:

4. $9\overline{)81}$ $6\overline{)54}$ $7\overline{)63}$ $8\overline{)56}$ $7\overline{)35}$ $6\overline{)48}$ $9\overline{)45}$ $7\overline{)42}$

5. $2\overline{)19}$ $5\overline{)27}$ $3\overline{)17}$ $2\overline{)10}$ $4\overline{)38}$ $5\overline{)47}$ $4\overline{)31}$ $8\overline{)73}$

Solve these problems:

6. At 6¢ each what should Jane pay for 7 air-mail stamps?

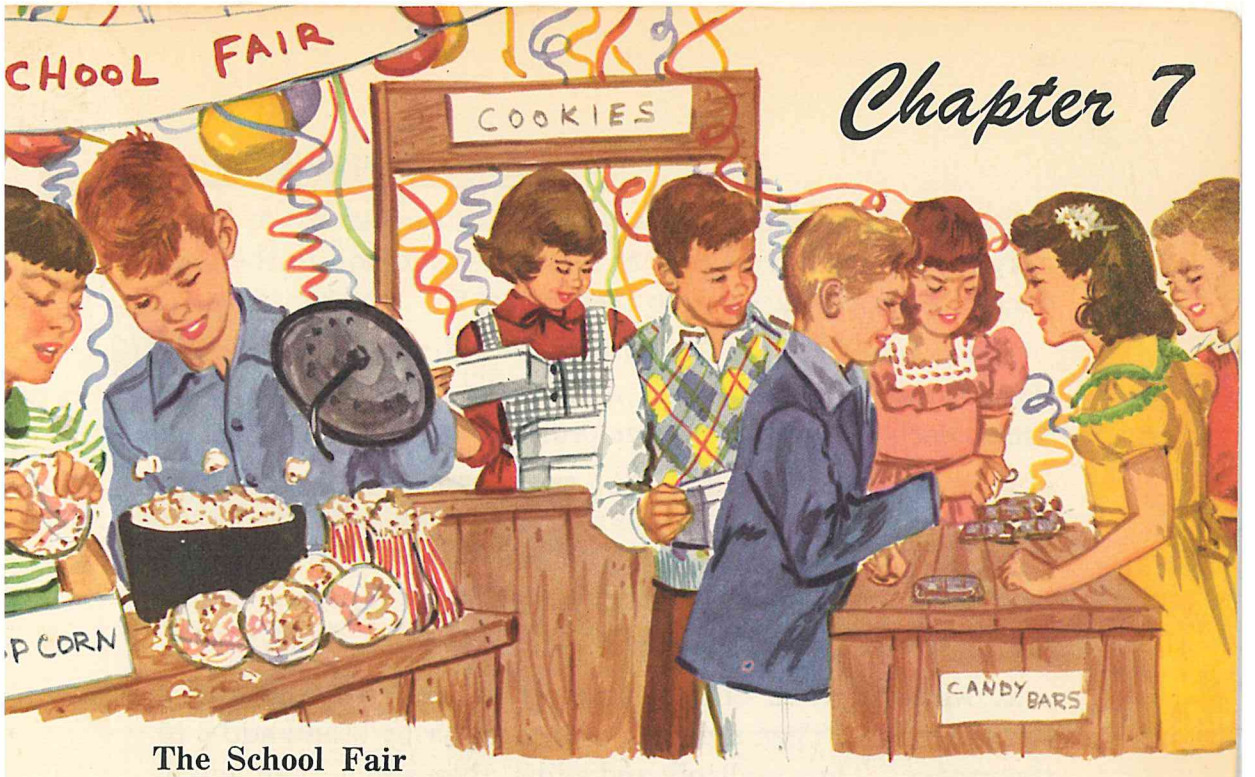
7. Last week the paper boy sold 369 papers. This week he sold 342 papers. How many did he sell in the two weeks?

8. The children need 27 feet of crepe paper for a strip along the top of the blackboard. How many yards of crepe paper do they need?

9. Ruth had $.69. She wanted a book that cost $1.50. How much more money did Ruth need?

10. John spent $.39 for oranges, $.75 for eggs, and $.89 for butter. How much money did he spend altogether?

11. How many 5-cent pencils can you buy with 18¢? How many cents would be left?



Chapter 7

The School Fair

The children at school, and their parents and teachers, held a school fair. Below are some problems about the fair. Read each problem. Think what it tells and what question it asks. Then write the example and find the answer.

1. Joan made 48 cookies to sell at the fair. She put them into 6 boxes, putting an equal number into each box. How many cookies did she put into each box?

2. The boys popped 52 bags of popcorn to sell. Bob said, "We could have sold 3 times as many." How many bags of popcorn would that have been?

3. Jane has a quarter. How many 4¢ bars of candy can she buy, and how much change should she get?

4. The girls made 85 popcorn balls to sell at the fourth-grade booth. They sold all but 9. How many did they sell?

5. The children at one booth took in $3.67, at another $4.92, and at a third $2.89. What was the total amount of money received at the three booths?

Helps in Multiplication

Look at the example below and its answer. After you multiply 6×8, you have 4 tens to remember and add to the product of 6×5. You have to think: $6 \times 5 + 4 = 34$.

$$\begin{array}{r} 58 \\ \times 6 \\ \hline 348 \end{array}$$

The practice in 1, 2, 3, and 4 below will help you learn to add a remembered number to a product. Think each answer, or give it orally if so directed.

2 3 4 5 6 7 8 9

1. Multiply each number at the right by 6 and add 2 to the product like this: Think or say, $6 \times 2 + 2 = 14$. $6 \times 3 + 2 = 20$, and so on. Then multiply by 6 and add 3. Then multiply and add 4. Then add 5.

2. Multiply each of the numbers above by 7 and add 2 to the product. Then multiply each number by 7 and add 3 to the product. Then multiply and add 4, then add 5, then add 6.

3. Multiply by 8 and add 2 to each product. In the same way multiply and add each of the numbers 3, 4, 5, 6, and 7.

4. In the same way, multiply by 9 and add each of the numbers 2, 3, 4, 5, 6, 7, and 8 to each product.

Find the products. Check by multiplying again.

5.	98	99	85	86	96	97	87	79	27	39
	$\times$ 5	$\times$ 4	$\times$ 8	$\times$ 7	$\times$ 6	$\times$ 3	$\times$ 6	$\times$ 7	$\times$ 4	$\times$ 5
6.	86	77	34	48	32	27	39	56	57	70
	$\times$ 9	$\times$ 7	$\times$ 6	$\times$ 5	$\times$ 8	$\times$ 5	$\times$ 3	$\times$ 4	$\times$ 2	$\times$ 3
7.	28	35	68	73	24	96	42	48	86	79
	$\times$ 4	$\times$ 5	$\times$ 3	$\times$ 9	$\times$ 8	$\times$ 7	$\times$ 9	$\times$ 7	$\times$ 8	$\times$ 6
8.	83	26	52	68	33	47	74	85	48	37
	$\times$ 6	$\times$ 8	$\times$ 7	$\times$ 7	$\times$ 6	$\times$ 9	$\times$ 3	$\times$ 4	$\times$ 9	$\times$ 8
9.	49	96	78	76	97	78	69	83	54	65
	$\times$ 7	$\times$ 4	$\times$ 3	$\times$ 5	$\times$ 8	$\times$ 9	$\times$ 6	$\times$ 7	$\times$ 3	$\times$ 6

Multiplying Three-Place Numbers

1. The milk committee gave out 275 bottles of milk in a week. At this rate how many bottles of milk will be used in 8 weeks?

Study the example for the problem. The multiplicand is a three-place number. You multiply hundreds in the same way you multiply tens or ones. Why is the answer a four-place number?

Th	H	T	O
	2	7	5
		×	8
2	2	0	0

Copy the example and find the answer without looking at the book. Was your answer right? Be ready to tell the class how to do the multiplication if your teacher asks you to do so.

Find the answers for the examples in each row. Add tens remembered to the product of the tens, and add hundreds remembered to the product of the hundreds whenever you need to do so. Check each answer by multiplying again.

2.	123 × 3	242 × 2	102 × 4	320 × 3	701 × 7	522 × 4	921 × 3	501 × 8
3.	243 × 3	170 × 5	172 × 4	141 × 7	890 × 4	564 × 2	691 × 6	442 × 3
4.	317 × 3	408 × 2	325 × 3	348 × 2	923 × 4	816 × 6	205 × 8	516 × 5
5.	246 × 3	189 × 5	489 × 2	138 × 7	369 × 6	765 × 7	934 × 9	823 × 8

Solve the following problems:

6. The ticket seller sold 875 tickets at a football game. At this rate how many would he sell at 6 games?

7. Dick's father drove 345 miles to Chicago and back. How many miles would he drive on 5 such trips?

8. How far will a jet airplane travel in 3 hours if it travels 510 miles an hour?

Multiplying Money Numbers

You know that we multiply numbers that stand for money in the same way that we multiply other numbers. Study the example at the right. Answer these questions about the steps in finding the answer:

$$\begin{array}{r} \$4.65 \\ \times 3 \\ \hline \$13.95 \end{array}$$

Cents: Why is the number 5 written in cents' place in the product?

Dimes: Why is the number 9 written in dimes' place in the product?

Dollars: Why is the number of dollars in the product 13?

What is the answer? How is it read? Read it silently.

Solve these problems:

1. Robert's father bought 3 shirts at $3.95 each. How much did he spend for all the shirts?

2. Henry earns $1.25 each week by running errands. How much does he earn in 8 weeks?

3. If Henry puts $.50 in his bank each week, how much will he save in 8 weeks?

4. Find the cost of 2 books at $1.98 each.

Find the answer for each of these examples. Check each answer by multiplying again carefully. Be sure to keep the dollar signs and cents points in their correct places.

5.	$1.50 ×5	$2.19 ×3	$3.84 ×3	$6.20 ×4	$8.71 ×8	$1.09 ×9	$9.75 ×2
6.	$2.79 ×6	$3.85 ×7	$6.43 ×3	$7.22 ×8	$8.33 ×4	$2.56 ×9	$3.57 ×3
7.	$2.03 ×3	$5.36 ×9	$4.25 ×5	$6.18 ×8	$5.97 ×7	$8.20 ×6	$5.08 ×4
8.	$4.36 ×8	$7.21 ×5	$3.85 ×3	$1.43 ×7	$7.47 ×4	$3.92 ×6	$2.95 ×7

A Vacation Trip

For each problem below write A, S, M, or D to show whether you will add, subtract, multiply, or divide. (If you need help in deciding, turn to page 67.) Then find the answer.

1. The Cooper family took a trip to a limestone cave. At lunch time Father's lunch was \$.75, Mother's \$.50, Judy's \$.75, and Bob's \$.80. How much did all the lunches cost?

2. The family stayed at a tourist court for 3 days at a cost of \$8.25 a day. What was the cost for the 3 days?

3. Dinner at a nearby restaurant cost \$1.35 for each person. The family ate dinner at this restaurant. How much did it cost for the 4 meals?

4. The attendant at the cave said that 375 persons visited the cave last week. At this rate how many would visit the cave in 6 weeks?

5. The elevator at the cave could carry 24 persons on each trip. How many persons could it carry in 8 trips?

6. Bob had \$.75 to spend. He paid \$.69 for a letter opener to give to his aunt. How much money did he have left?

7. Judy had 20¢ and wanted to buy some 3¢ post cards. How many could she buy and how many cents would she have left?

8. The guide said that one of the rooms in the cave was 27 feet wide. How many yards wide was it? (1 yard = 3 feet)

Think

Addition and Subtraction Facts

On your paper write the answer for each addition example below. See how quickly you can get all the right answers.

1.	5	8	1	6	5	2	9	9	6	7	2	3
	5	1	3	6	4	2	1	4	1	6	7	4
2.	7	4	3	8	5	3	8	9	5	4	2	6
	2	3	6	5	3	7	4	7	7	8	5	3
3.	4	5	9	7	8	7	9	2	6	8	7	1
	9	1	5	4	2	9	6	8	7	7	3	9
4.	8	4	3	5	6	9	7	2	5	9	4	7
	9	6	5	8	8	3	7	3	2	8	4	1
5.	4	1	6	8	3	9	5	8	3	2	8	5
	2	7	9	6	8	9	9	3	3	4	8	6
6.	2	4	6	3	6	3	4	7	2	9	7	6
	9	5	2	9	5	2	7	8	6	2	5	4

Do the same for the subtraction examples below:

7.	7	8	9	5	8	9	6	7	9	8	6	8
	2	6	9	2	7	6	4	3	3	2	5	8
8.	6	9	7	4	9	5	9	7	9	8	8	5
	3	8	4	3	2	3	5	7	7	4	5	4
9.	18	13	12	15	14	11	14	16	14	12		
	9	9	7	6	5	2	8	7	9	3		
10.	17	13	15	11	10	15	12	12	17	13		
	8	8	7	3	4	8	5	8	9	7		
11.	16	12	11	12	15	11	13	11	10	13		
	8	4	4	9	9	7	4	8	5	6		
12.	11	10	12	10	11	10	14	11	16	14		
	5	6	6	8	9	3	6	6	9	7		

Multiplication and Division Facts

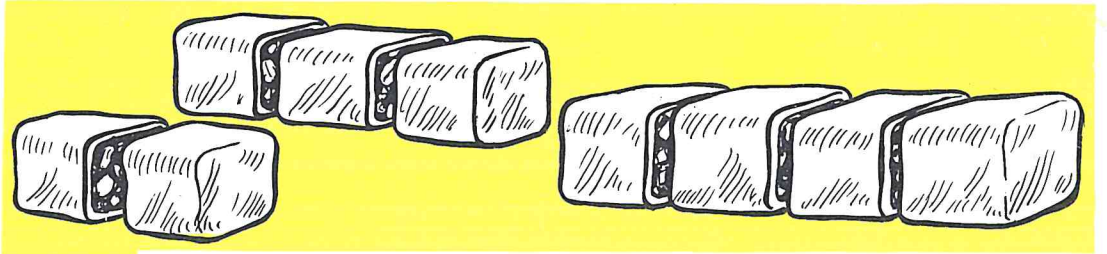
You want to learn the multiplication facts and the division facts so that you can give the answers quickly. See how quickly you can think the products for these multiplication examples. Then copy the examples and write the products.

1.	4	8	7	4	9	3	6	7	6	3	2	9
	9	5	8	3	4	5	8	2	7	6	8	1
2.	6	7	7	9	3	9	5	1	5	2	4	6
	4	7	5	6	3	9	3	1	7	7	2	6
3.	4	6	5	4	2	5	2	6	8	2	3	7
	6	3	9	4	9	8	4	5	3	5	4	1
4.	9	5	3	8	4	9	8	3	9	2	1	6
	3	6	9	8	5	5	9	7	8	6	8	9
5.	9	4	2	5	1	8	7	1	8	8	4	3
	2	7	2	5	4	7	6	9	6	1	8	2
6.	3	7	2	8	5	7	7	8	6	5	9	1
	8	4	3	2	4	3	9	4	2	2	7	6

See how quickly you can think the answers for these division examples. Then copy the examples and write the quotients.

7.	$2\overline{)18}$	$6\overline{)24}$	$7\overline{)28}$	$9\overline{)36}$	$7\overline{)56}$	$9\overline{)54}$	$8\overline{)32}$	$9\overline{)81}$
8.	$7\overline{)63}$	$8\overline{)64}$	$9\overline{)18}$	$7\overline{)42}$	$4\overline{)36}$	$5\overline{)45}$	$7\overline{)21}$	$5\overline{)25}$
9.	$9\overline{)27}$	$7\overline{)35}$	$5\overline{)15}$	$5\overline{)40}$	$6\overline{)54}$	$5\overline{)30}$	$8\overline{)72}$	$6\overline{)42}$
10.	$9\overline{)72}$	$8\overline{)24}$	$8\overline{)16}$	$8\overline{)48}$	$6\overline{)30}$	$6\overline{)48}$	$3\overline{)24}$	$3\overline{)27}$
11.	$4\overline{)32}$	$5\overline{)20}$	$4\overline{)28}$	$6\overline{)36}$	$8\overline{)56}$	$4\overline{)12}$	$2\overline{)16}$	$3\overline{)15}$
12.	$4\overline{)16}$	$8\overline{)40}$	$9\overline{)63}$	$4\overline{)24}$	$3\overline{)21}$	$6\overline{)18}$	$3\overline{)12}$	$4\overline{)20}$
13.	$5\overline{)35}$	$9\overline{)45}$	$7\overline{)49}$	$7\overline{)14}$	$6\overline{)12}$	$3\overline{)18}$	$2\overline{)10}$	$3\overline{)9}$

Remember



Helping You Understand the Meaning of Fractions

Look at the picture above. It shows a 2-ounce candy bar divided into 2 equal parts, a 3-ounce bar divided into 3 equal parts, and a 4-ounce bar divided into 4 equal parts.

$\frac{1}{2}$ is a *fraction*. The *denominator* 2 tells us that something is divided into 2 equal parts. The *numerator* 1 tells us that we are thinking of 1 of these 2 equal parts.

1. How many ounces are there in $\frac{1}{2}$ of the 2-ounce candy bar? How many $\frac{1}{2}$ candy bars equal 1 whole candy bar? Do you see that $\frac{2}{2}$ of a bar = 1 whole bar?

$\frac{2}{3}$ is also a *fraction*. The *denominator* 3 tells us that something is divided into 3 equal parts. The *numerator* 2 tells us that we are thinking of 2 of these 3 equal parts.

2. How many ounces are there in $\frac{1}{3}$ of the 3-ounce candy bar? In $\frac{2}{3}$ of it? How many $\frac{1}{3}$ candy bars equal 1 whole candy bar? Do you see that $\frac{3}{3}$ of a bar = 1 whole bar?

In the *fraction*, $\frac{3}{4}$, 4 is the *denominator* and 3 is the *numerator*. The fraction $\frac{3}{4}$ means that we are thinking of 3 of 4 equal parts into which something has been divided.

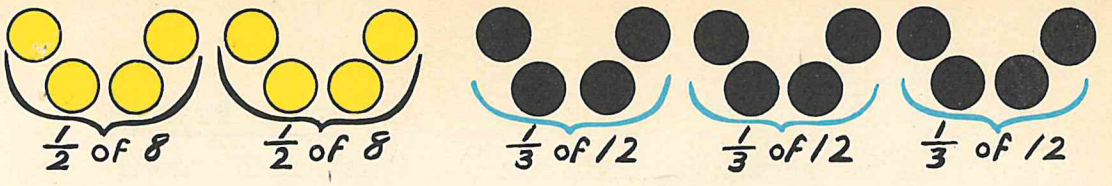
3. How many ounces are there in $\frac{1}{4}$ of the 4-ounce candy bar? How many ounces are there in $\frac{3}{4}$ of the 4-ounce bar? Do $\frac{4}{4}$ of a candy bar = 1 whole bar?

4. What does each of these fractions tell us?

$\frac{1}{2}$ $\frac{1}{5}$ $\frac{2}{3}$ $\frac{3}{3}$ $\frac{1}{6}$ $\frac{5}{6}$ $\frac{3}{4}$ $\frac{4}{4}$ $\frac{1}{8}$ $\frac{7}{8}$

Now you have learned:

- $\frac{2}{2}$ or $\frac{3}{3}$ or $\frac{4}{4}$ of a whole thing equals the whole thing.



Fractions and Division

1. Bob has 8 marbles. He is going to give $\frac{1}{2}$ of the 8 marbles to Tom. How many marbles will Tom get?

You need to find how many marbles equal $\frac{1}{2}$ of 8 marbles.

You know that $\frac{1}{2}$ of 8 means 1 of 2 equal parts into which a group of 8 will be divided.

Do you see that to find $\frac{1}{2}$ of 8 you must divide 8 into 2 equal parts? $8 \div 2 = 4$, so $\frac{1}{2}$ of $8 = 4$.

Tom will get 4 marbles.

2. How many marbles are $\frac{1}{3}$ of 12 marbles? $12 \div 3 = ?$

Think the answer for each example below. Then copy the examples and write the answers.

3.	$6 \div 2 = ?$	$\frac{1}{2}$ of $6 = ?$	$15 \div 3 = ?$	$\frac{1}{3}$ of $15 = ?$
4.	$14 \div 2 = ?$	$\frac{1}{2}$ of $14 = ?$	$16 \div 2 = ?$	$\frac{1}{2}$ of $16 = ?$
5.	$18 \div 3 = ?$	$\frac{1}{3}$ of $18 = ?$	$21 \div 3 = ?$	$\frac{1}{3}$ of $21 = ?$
6.	$16 \div 4 = ?$	$\frac{1}{4}$ of $16 = ?$	$20 \div 4 = ?$	$\frac{1}{4}$ of $20 = ?$
7.	$27 \div 3 = ?$	$\frac{1}{3}$ of $27 = ?$	$32 \div 4 = ?$	$\frac{1}{4}$ of $32 = ?$
8.	$\frac{1}{2}$ of $18 = ?$	$\frac{1}{3}$ of $24 = ?$	$\frac{1}{4}$ of $36 = ?$	$\frac{1}{4}$ of $28 = ?$

Solve these problems:

9. Alice has 28¢. She has decided to put $\frac{1}{4}$ of it in her bank. How many cents should she put in her bank?

10. Joe and Sam caught 14 fish altogether. They divided the fish equally. How many fish did each boy get?

Now you have learned:

- To find $\frac{1}{2}$ *of a number*, you *divide the number by* 2.
- To find $\frac{1}{3}$ *of a number*, you *divide the number by* 3.
- To find $\frac{1}{4}$ *of a number*, you *divide the number by* 4.

Mixed Practice

Find the answer for each example. Check each answer.

Add:

1.	67	44	20	74	395	478	500	927
	14	69	87	3	28	269	784	9
	80	21	65	96	160	325	642	78
	9	38	63	2	699	182	426	287

Subtract:

2.	418	700	472	653	594	875	900	700
	39	73	241	490	578	389	123	9

Multiply:

3.	49	25	78	334	812	240	461	346
	5	8	4	2	4	3	5	6
4.	109	418	142	235	624	543	352	473
	7	3	6	4	8	7	9	8

Divide:

5.	$6\overline{)48}$	$8\overline{)56}$	$9\overline{)63}$	$9\overline{)81}$	$6\overline{)54}$	$7\overline{)49}$	$8\overline{)32}$	$7\overline{)42}$
6.	$4\overline{)21}$	$5\overline{)32}$	$4\overline{)26}$	$2\overline{)17}$	$3\overline{)19}$	$2\overline{)13}$	$5\overline{)28}$	$3\overline{)29}$
7.	$8\overline{)48}$	$5\overline{)26}$	$8\overline{)72}$	$4\overline{)39}$	$7\overline{)42}$	$3\overline{)23}$	$9\overline{)36}$	$4\overline{)19}$

Copy these examples and write the answers:

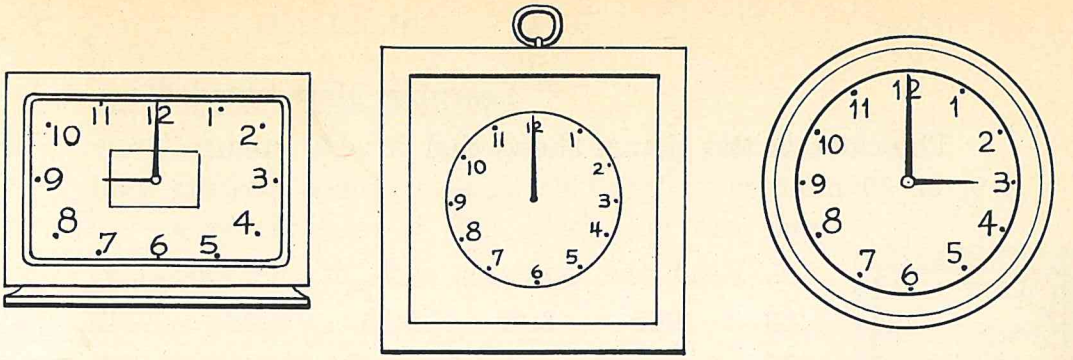
8. $\frac{1}{2}$ of 16 = ? $\frac{1}{3}$ of 24 = ? $\frac{1}{2}$ of 12 = ? $\frac{1}{4}$ of 32 = ?

9. $\frac{1}{3}$ of 27 = ? $\frac{1}{4}$ of 28 = ? $\frac{1}{2}$ of 18 = ? $\frac{1}{4}$ of 16 = ?

Solve these problems:

10. John had 18¢. He put $\frac{1}{2}$ of it in his piggy bank. How much money did he put in the piggy bank?

11. Alice and her 3 friends made 36 cookies. Each girl kept $\frac{1}{4}$ of the cookies. How many did each of the 4 girls keep?



Learning about Time

1. Tell what time it is by each clock in the picture above.

You know that it is 9 o'clock twice every day, once in the morning and once in the evening. The short way to write 9 *o'clock in the morning* is like this: 9 a.m.

The abbreviation a.m. stands for the Latin words *ante meridiem*. *Ante* means *before*. *Meridiem* means *midday*. *Noon* is the middle of the day. That is why a.m. means *before noon*.

Because *m.* means *midday* and because noon is the middle of the day, the short way to write 12 *o'clock noon* is 12 m.

The abbreviation for the Latin word *post*, which means *after*, is p. Now you can see why p.m. means *afternoon*.

The short way to write 9 *o'clock in the evening* is 9 p.m., meaning 9 hours after 12 m., the middle of the day.

2. Write *three o'clock in the afternoon*, and *seven o'clock in the morning* the short way.

Write in words each time given below. For 6 a.m. write *six o'clock in the morning*. What will you write for 4 p.m.?

3. 6 a.m. 4 p.m. 8 p.m. 10 a.m. 12 m. 3 a.m.

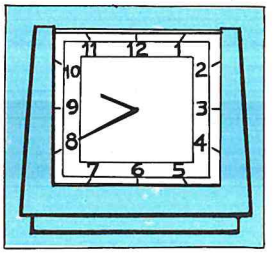
4. 9 a.m. 5 p.m. 1 a.m. 11 p.m. 4 a.m. 12 p.m.

Now you have learned:

- When we write the time we may use a.m. to mean *before noon*, m. to mean *noon*, and p.m. to mean *afternoon*.

Learning More about Time

The clock in the picture shows that it is 40 minutes after 9, or 20 minutes to 10. This time is usually written 9:40 and read *nine forty*. 1:07 is read *one seven*.



1. Read the time for each of the following:

1:10 2:05 8:45 5:15 6:23 7:47

Use figures to write the time when the clock shows:

2. Five twenty **3.** Two eight

4. Eight fifty **5.** Six thirty-three

The *units of time* which are measured by a clock are:

60 seconds (sec.) = 1 minute (min.)
60 minutes = 1 hour (hr.)
24 hours = 1 day (da.)

Find the answer for each problem below.

6. Jim is going to visit his uncle. The bus he will ride on leaves at 2:20 p.m. It is now 2:05 p.m. How long has Jim to wait?

7. Bob and his mother are to meet a train that will arrive at 2:45 p.m. It takes 15 minutes to get to the station. What time should Bob and his mother start for the station?

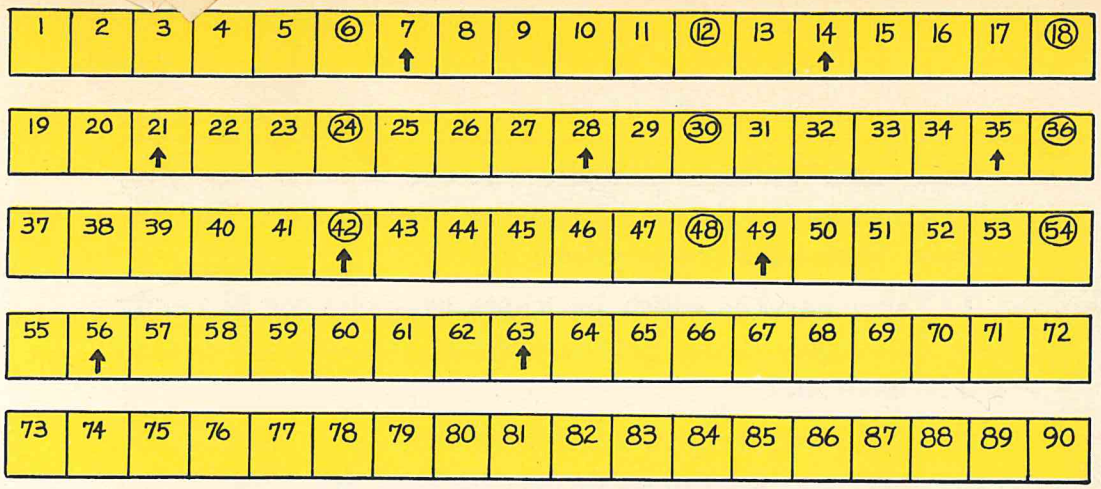
8. Nancy goes home from school for lunch. She leaves school at 11:40 a.m. It takes her 20 minutes to get home. What time should Nancy's mother plan to have lunch?

9. Jerry went to Jim's house at 11 a.m. His mother told him to be back in 3 hours. What time should he be home?

10. Joan was 12 minutes late for lunch, which was ready at 12 m. What time did Joan get home for lunch?

11. In 25 minutes it will be 1:30 p.m. What time is it now?

12. How many minutes is it from 11:45 a.m. to 12:10 p.m.?



Uneven Division

1. Study the picture above. Each number in a circle can be divided evenly by 6. For each number in a circle, think ? × 6 = that number. For the number 12 think 2 × 6 = 12.

2. Each number with an arrow below it can be divided evenly by 7. For each number with an arrow, think ? × 7 = that number. For the number 14 think 2 × 7 = 14.

3. Do the same thing for the numbers that can be divided evenly by 8. For 16 think 2 × 8 = 16, and so on.

4. Then do the same thing for the numbers that can be evenly divided by 9. For 18 think 2 × 9 = 18, and so on.

Below are some uneven division examples. For each example tell the next smaller number that can be divided evenly by the divisor. Use the picture above as a help.

5. $6\overline{)28}$ $6\overline{)17}$ $7\overline{)32}$ $9\overline{)21}$ $8\overline{)31}$ $9\overline{)34}$ $4\overline{)25}$ $8\overline{)45}$

6. $7\overline{)22}$ $9\overline{)42}$ $8\overline{)38}$ $6\overline{)9}$ $7\overline{)36}$ $6\overline{)33}$ $7\overline{)43}$ $5\overline{)41}$

7. $6\overline{)19}$ $9\overline{)50}$ $8\overline{)23}$ $7\overline{)16}$ $8\overline{)76}$ $6\overline{)57}$ $6\overline{)52}$ $7\overline{)64}$

8. $8\overline{)54}$ $7\overline{)27}$ $6\overline{)13}$ $6\overline{)22}$ $9\overline{)28}$ $7\overline{)29}$ $9\overline{)70}$ $9\overline{)73}$

9. $6\overline{)37}$ $6\overline{)45}$ $8\overline{)58}$ $7\overline{)53}$ $8\overline{)65}$ $9\overline{)55}$ $9\overline{)82}$ $7\overline{)60}$

Copy each example above and divide. Turn to page 87 if you need help. Can you check your answer? Look at page 88.

Solving Problems

Read each problem carefully. Decide what it tells you, what question it asks, and what you need to do to find the answer. Then solve the problem.

1. Larry has 17¢ which he wants to spend for 5¢ candy bars. How many candy bars can he buy and how many cents will he have left?

2. John wants to give $\frac{1}{2}$ of his 12 marbles to his brother. How many marbles should he give his brother?

3. At 9¢ each, how many bars of soap could Martha buy for 40¢? How much money would be left?

4. June earned 32¢. She saves $\frac{1}{4}$ of all the money she earns. How many cents should she put in her bank?

5. Jerry has 75 stamps. He wants to put 8 stamps on each page of his stamp book. How many pages will he use? How many stamps will be left?

6. There are 27 children in the fourth grade. $\frac{1}{3}$ of them are to go to the library today. How many should go?

7. How many 5¢ pencils can I buy for 35¢?

8. How many quarts could be filled with 19 pints of cherries? How many pints would be left? (2 pints = 1 quart)

9. Kenneth saves $\frac{1}{3}$ of all he earns. One day he earned 27¢. How many cents should he put in his bank?

10. How many gallons do 27 quarts equal? How many quarts are left? (4 quarts = 1 gallon)

11. Mother has 14 cookies to divide equally among 6 boys. How many cookies should each boy get? How many cookies will be left?

12. John had $1.75 and earned 50¢ helping his father. How much money did he have altogether?

To Help You Remember

The page numbers after the questions tell you where to turn for help.

▶ *To think and talk about:*

1. What are the two parts of a fraction called? What does each part of the fraction $\frac{2}{3}$ tell us? How many $\frac{1}{3}$ candy bars equal 1 whole candy bar? (100)

2. Tell how to find the answer for $\frac{1}{4}$ of 12 = ? (101)

Tell how to find the answer for each example below. Explain each step.

3. $\begin{array}{r} 387 \\ +496 \end{array}$ (70) **4.** $\begin{array}{r} 306 \\ -28 \end{array}$ (52) **5.** $8\overline{)72}$ (83) **6.** $9\overline{)64}$ (105)

7. In telling time, as 9:50, is it better to say *nine fifty*, *fifty minutes after nine*, or *ten minutes to ten?* Why? (104)

8. Why do you often have to use addition when you are working a multiplication example? (94)

▶ *To think about and write:*

Find the answers for these examples:

1. $4 \times 6 + 3 = ?$ $9 \times 5 + 7 = ?$ $6 \times 7 + 4 = ?$ (94)

2. $327 + 469 + 43$ (51) **3.** $\$1.79 + \$.07 + \$1.63$ (70)

4. $206 - 192$ (71) **5.** $82 \div 9$ (105) **6.** $8\overline{)74}$ (105)

7. Find the cost of two sweaters at \$3.65 each. (96)

8. Write *nine o'clock in the morning* the short way. (103)

Copy and write the missing numbers:

9. The fraction $\frac{1}{3}$ means that we are thinking of ? of the ? equal parts into which a whole thing has been divided. (100)

10. $\frac{3}{3}$ of a whole thing equals ? whole thing. (100)

11. $\frac{3}{4}$ means ? of ? equal parts of a whole thing. (100)

Testing Yourself

Add and check:

1.

8	6	296	537	329	59	$8.30	653
9	4	84	864	184	420	1.22	439
7	5	187	75	76	327	4.69	785
				550	478	3.12	428

Subtract and check:

2.

11	26	44	301	427	527	$7.00	372
8	3	29	25	125	490	1.28	368

Multiply and check:

3.

9	8	6	31	76	320	118	$6.13	294
4	6	9	8	9	6	5	7	9

Divide and check:

4. $8\overline{)56}$ $6\overline{)48}$ $9\overline{)54}$ $4\overline{)24}$ $5\overline{)40}$ $3\overline{)27}$ $7\overline{)42}$ $2\overline{)18}$

5. $3\overline{)29}$ $8\overline{)34}$ $6\overline{)40}$ $7\overline{)59}$ $9\overline{)80}$ $5\overline{)37}$ $8\overline{)25}$ $4\overline{)35}$

6. $\frac{1}{2}$ of 8 = ? $\frac{1}{3}$ of 27 = ? $\frac{1}{4}$ of 24 = ? $\frac{1}{3}$ of 9 = ?

Solve these problems:

7. There were 64 children at a picnic. If 8 children sat at each table at lunch, how many tables did they use?

8. Larry has 17¢. He wants to buy 5¢ candy bars. How many candy bars can he buy and how many cents will he have left?

9. Rulers are packed 144 to a box. How many rulers are there in 6 boxes?

10. Martha bought 4 bars of soap for 36¢. How much change should she receive from 50¢?

11. Ann weighs 65 pounds. Her brother weighs 46 pounds. How much do the two children weigh?

Chapter 8

Solving Problems

For each problem below follow this problem solving plan:

> Find what the problem tells you.

> Find what question the problem asks.

> Decide whether to add, subtract, multiply, or divide to find the answer. (Page 67 shows you how to decide.)

Then write the example and find the answer.

1. Jack and his mother are at the airport to meet Jack's father. The plane will arrive at 4:55 p.m. It is now 4:30 p.m. How long have they to wait?

2. It cost 25¢ to park the car at the airport. Jack handed the man $1.00. How much change did he get?

3. On this trip Jack's father had traveled 375 miles to one city, 350 miles to another, and then 609 miles to get home. How far had he traveled on this trip?

4. The plane he rode in could fly 325 miles each hour. How far could it fly in 3 hours?

5. Jack watched 42 people get off one plane and 19 get off another. How many people in all got off the two planes?

Learning about Two-Step Problems

Sometimes you must work two examples to answer the question a problem asks. The problems below are like that.

Study the first problem. Can you tell why you must write and work two examples to answer the question it asks?

1. Judy had 20¢. She bought a candy bar for 5¢ and a balloon for 6¢. How many cents did she have left?

Step 1

A $5¢ + 6¢ = 11¢$

Step 1. First you must find how many cents Judy spent. Why must you know this? How can you find out? $5¢ + 6¢ = 11¢$.

Step 2. Then you can find how many cents Judy had left. Think how you can do this. $20¢ - 11¢ = 9¢$. Judy had 9¢ left.

Step 2

S $20¢ - 11¢ = 9¢$

For each problem below, decide what you must do as step 1 before you can take step 2. Write the example for step 1 and work it. Then write the example for step 2 and find the answer.

2. Betty had $.75. She spent $.10 for bus fare and $.39 for lunch. How much money did she have left?

3. Mary had 97 pages of a book to read. She read 35 pages in the morning and 19 pages in the afternoon. How many pages did she have left to read?

4. Jack had a quarter and spent $.12 for a movie and $.10 for popcorn. How much money did he have left?

5. John had 30 tickets to sell. He sold 15 tickets yesterday and 9 tickets today. How many tickets does he still have to sell?

6. Jane made 12 dark cupcakes and 12 light cupcakes. How many more cupcakes does she need to fill a box that holds 36 cupcakes?

Solving Two-Step Problems

In each problem below you must take two steps to find the answer. First you must add, then you must subtract. Read each problem carefully. Then find its answer.

1. Alice is having a party for 14 friends. She invited 6 of them this morning and 3 of them this afternoon. How many has she yet to invite?

Step 1. Add to find how many friends Alice has already invited. Why must you do this first?

Step 2. Then you can find how many friends she still has to invite. How can you find this?

Step 1	Step 2
6	14
+3	−9
9	5

2. Tom had 25¢. He bought a pencil for 5¢ and an eraser for 5¢. How much money did he have left?

3. Helen had $1.00. She paid $.17 for her own movie ticket and $.66 for her mother's. How much change did she get?

4. Joe is reading a 250-page book. He read 65 pages yesterday and 50 pages today. How many more pages has he to read?

5. Jerry wants to buy a pair of skates for $3.50 and a cap for $1.25. He has $4.00. How much more money does he need?

6. Jim had 14 rabbits in one pen, and 12 in another. His mother said he could keep 8. How many must he sell?

7. How much change should you get from $3.00 if you buy a bicycle bell for $.75 and a bicycle tire for $2.16?

8. Jack's father had 900 gallons of fuel oil in his truck. He delivered 450 gallons to a store and 180 gallons to a home. How many gallons did he have left in the truck?

9. Susan and her father are going to grandfather's. It is 789 miles. The first day they drove 375 miles. The next morning they drove 200 miles. How much farther did they have to go?

Reviewing Addition

Copy the examples below. Add and check.

1.	715	229	32	27	970	$9.28	$6.79
	24	36	600	30	13	.36	.35
	37	27	20	491	65	.90	.65
2.	546	329	708	587	295	$6.44	$8.36
	232	707	246	462	433	7.53	2.67
3.	975	65	996	865	68	$9.78	$4.29
	93	87	88	89	945	.98	3.15
	74	996	67	53	72	.46	.70
	212	886	657	537	358	6.47	1.03
4.	211	325	162	505	671	$4.93	$3.98
	175	592	377	295	576	7.82	1.82
	286	487	344	666	294	1.49	8.49

Solve each of these problems:

5. Susan's dress cost $3.95 and her hat cost $1.98. How much did both cost?

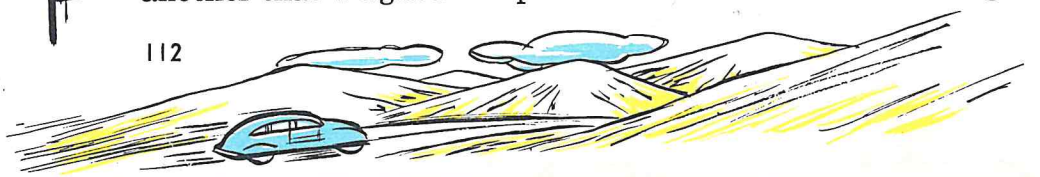
6. Edward and his mother went shopping. They spent $3.78 at the meat market, $4.50 at the grocery store, and $1.78 at the bakery. How much did they spend in all?

7. On a trip Lucy's father drove 370 miles the first day, 395 the second day, 280 the third day, and 412 the fourth day. How far did he drive in the four days?

8. Last month Barbara read one book of 110 pages, another of 87 pages, a third of 168 pages, and a fourth of 120 pages. How many pages in all were there in the four books?

9. Fred's father paid $8.75 for a hat and $3.25 for a shirt. How much did he pay for both?

10. Tom's father sold one hog that weighed 275 pounds and another that weighed 285 pounds. How much did both weigh?



Reviewing Subtraction

Copy each example below. Subtract and check.

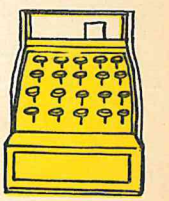
1.	10	12	12	14	15	16	13	13	17	11
	6	7	5	6	9	7	9	5	8	5
2.	39	21	46	54	77	32	65	83	92	80
	7	8	5	9	4	6	3	8	7	2
3.	88	29	96	73	67	30	54	85	63	50
	14	19	29	45	58	17	37	68	27	20
4.	366	429	652	150	500	605	300	103		
	48	45	39	86	73	27	20	68		
5.	748	665	217	355	651	730	540	245		
	525	241	144	282	436	529	305	136		
6.	402	300	250	620	710	503	405	203		
	234	177	175	486	392	276	107	179		
7.	$.85	$.36	$5.73	$6.85	$5.00	$3.25	$6.03			
	.09	.28	.47	.98	2.39	2.39	.07			

Find the answer for each of these problems:

8. Ben bought a writing pad priced at 11¢. How much change should he get from 25¢?

9. At a bookstore Ellen saw a book that she would like to buy. It cost $2.00. She had only $.84. How much more money did she need to buy the book?

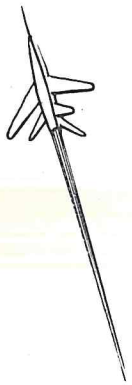
10. Everett bought a softball that was marked down from $2.25 to $1.98. How much did he save by buying at the reduced price?



11. Frank bought a storybook that cost $1.65. How much change should he get from $2.00?

12. Mary had $.75 and spent $.29 for lunch. How much money did she have left?

Reviewing Multiplication and Division



Copy these examples, multiply and check.

1.	4	4	6	7	8	9	7	4	5	2	7	9
	9	7	6	8	4	8	7	6	5	7	9	6
2.	31	41	83	82	43	62	71	52	60	34		
	3	6	3	2	2	3	5	4	6	2		
3.	56	73	14	39	66	53	19	37	57	29		
	3	6	5	2	9	7	4	8	8	7		
4.	348	153	618	273	492	234	387	503				
	2	6	4	3	2	7	5	7				
5.	\$.09	\$.42	\$.81	\$.53	\$1.12	\$5.30	\$6.72					
	5	2	6	8	4	3	4					

Copy these examples, divide and check.

6.	$5\overline{)30}$	$8\overline{)64}$	$9\overline{)18}$	$7\overline{)42}$	$9\overline{)63}$	$4\overline{)32}$	$9\overline{)45}$	$8\overline{)72}$
7.	$5\overline{)25}$	$3\overline{)21}$	$7\overline{)35}$	$8\overline{)40}$	$9\overline{)81}$	$6\overline{)24}$	$7\overline{)56}$	$8\overline{)32}$
8.	$8\overline{)48}$	$5\overline{)35}$	$3\overline{)27}$	$4\overline{)28}$	$7\overline{)63}$	$6\overline{)54}$	$7\overline{)49}$	$4\overline{)36}$
9.	$5\overline{)21}$	$7\overline{)60}$	$8\overline{)35}$	$6\overline{)50}$	$4\overline{)30}$	$7\overline{)45}$	$7\overline{)66}$	$8\overline{)54}$
10.	$8\overline{)47}$	$9\overline{)55}$	$6\overline{)19}$	$6\overline{)39}$	$4\overline{)29}$	$5\overline{)37}$	$9\overline{)42}$	$9\overline{)85}$

For each problem write M for multiply, or D for divide. Then write the example for the problem and find the answer.

11. There are 144 pieces of chalk in a large box. How many pieces of chalk would there be in 5 such boxes?

12. How much does each orange cost if 6 cost 30¢ ?

13. Helen had 40¢. How many sweet rolls could she buy at 6¢ each? How much money would she have left?

14. A jet airplane flew 475 miles an hour for 3 hours. How far did it fly?

More about Two-Step Problems

Sometimes a problem asks a question which you can answer most easily by adding, and then adding again.

1. Bob's father said, "Bob, I will give you as much money as you can save in the next two weeks." Bob saved $.35 the first week and $.55 the second week. Then his father gave Bob the money he had promised to give him. How much money did Bob have then?

Step 1. Find how much Bob saved in the two weeks. Why must you find that? How can you find how much that was?

Step 2. Since you have found that Bob saved $.90 in the two weeks, you know that his father will give him $.90. How can you find how much money Bob will have?

Step 1

A $.35
+.55
$.90

Step 2

A $ .90
+.90
$1.80

For each problem below decide what you must do as step 1 and what you will do as step 2. For each step write A for add, or S for subtract. Then find the answer.

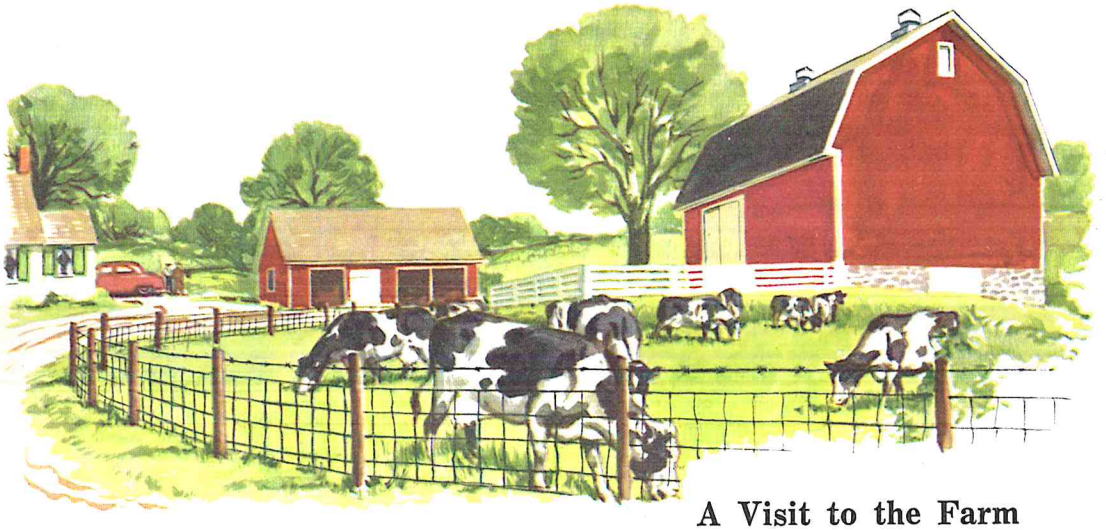
2. Roy sold 37 Christmas seals and Tom sold 25. David said he could sell as many as both Roy and Tom had sold. If he does, how many seals will all three boys have sold?

3. Betty saved $.65 one week and $.79 the next, but she spent $.95 for a book. How much money had she left?

4. Alice saved $.45 in January and $.50 in February. In March she plans to save as much as she did in both the other two months. If she does, how much will she have in all?

5. Jim spent 20¢ for a sundae and 15¢ for a bag of nuts. How much change should he get from 50¢ ?

6. Billy spent $1.25 for a book and $2.95 for a shirt. How much change should he get from $5.00?



A Visit to the Farm

John and Mary Wilson visited Ruth and Dick Harper, who live on a farm. Mr. Harper was John's and Mary's uncle. Find the answer for each problem about the visit.

1. John's uncle had 50 cows. He kept 35 in the barn and the rest in a shed. How many cows were kept in the shed?

2. There were 26 calves which were kept in pens that held 4 calves each. How many pens with 4 calves were there and how many calves were left for another pen?

3. John counted 24 pigs in one pigpen and 19 in another. "I have that many more pigs out in the field," said John's uncle. "How many pigs do I have altogether?"

4. John's uncle sold 9 ten-gallon cans of milk a day. How many cans of milk did he sell in 7 days?

5. Each full can of milk weighed 98 pounds. If ten gallons of milk weigh 86 pounds, what does each empty can weigh?

6. John's uncle sold a 969-pound cow, a 99-pound calf, and a 95-pound calf. How much did all three animals weigh?

7. John's uncle had 225 chickens in one chicken house, 90 in another, and 75 in a third. He planned to sell 150 chickens. How many would be left?

A Visit to the City

John and Mary invited Ruth and Dick to the city for a visit. Each problem below tells something about the visit. Find the answer for each problem.

1. Mr. Harper drove Ruth and Dick to the Wilson home in the city. It was 125 miles. They had driven 83 miles when they stopped for lunch. How far had they yet to go?

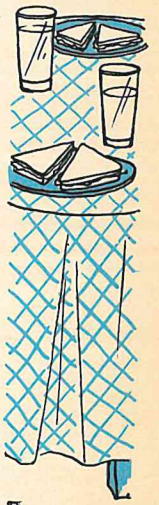
2. Ruth's lunch cost \$.75, Dick's cost \$.40, and Mr. Harper's cost \$.85. How much did all three lunches cost?

3. Mr. Harper paid \$1.42 for gasoline and \$.40 for oil for the car. How much change did he get from \$5.00?

4. One day Mrs. Wilson took the four children shopping. Ruth paid \$1.28 for a scarf for her mother. How much change did she get from \$2.00?

5. Mrs. Wilson bought 3 yards of cloth for aprons at \$.59 a yard. How much did the cloth cost?

6. Dick bought a picture book for \$.79 and a pen for \$.75. How much did he spend in all for the book and the pen?



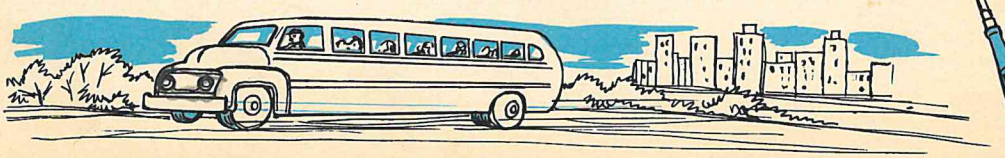
7. Ruth spent \$.38 for writing materials. How much change should she get from \$.50?

8. At noon they all ate lunch in a restaurant. Mary's lunch cost \$.35; John's, \$.51; Ruth's, \$.40; and Dick's, \$.45. How much did the lunches for the four children cost?

9. For his father, Dick bought a big screwdriver for \$.89, and a small screwdriver for \$.33. How much change should Dick get from \$1.25?

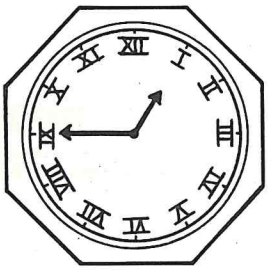
10. They all went back to the Wilson's home on the bus. The bus fare for the children was \$.14 each. What was the total bus fare for all 4 children?

11. After they got off the bus, Mrs. Wilson bought 4 ice cream cones for 32¢. What was the price of each cone?



Learning about Roman Numbers

The figures 1, 2, 3, 4, 5, 6, 7, 8, and 9 are *Arabic numerals*. *Roman numerals* are letters which stand for numbers.



Roman numbers are sometimes used to number the hours on clocks, to show dates on buildings, to number chapters in a book, or to number the books in a set of books.

In Roman numbers, I stands for 1, V stands for 5, and X stands for 10. The Roman numerals I, V, and X are used to write the Roman numbers from 1 through 39.

1. Here are the Roman numbers I through X, compared with the Arabic numbers 1 through 10. Study these numbers.

I = 1	VI = 6 (5 + 1)
II = 2 (1 + 1)	VII = 7 (5 + 1 + 1)
III = 3 (1 + 1 + 1)	VIII = 8 (5 + 1 + 1 + 1)
IV = 4 (5 − 1)	IX = 9 (10 − 1)
V = 5	X = 10

2. The Roman numbers II and III show that a numeral is added as often as it is repeated. IV and IX show that a smaller numeral to the left of a larger numeral is subtracted from the larger one. VI, VII, and VIII show that a smaller numeral to the right of a larger numeral is added to the larger numeral. Write the Roman numbers from one through ten.

3. Study the Roman numbers shown below. Then write the Roman numbers from 11 through 20.

XI = 11 (10 + 1)	XVI = 16 (10 + 6)
XII = 12 (10 + 2)	XVII = 17 (10 + 7)
XIII = 13 (10 + 3)	XVIII = 18 (10 + 8)
XIV = 14 (10 + 4)	XIX = 19 (10 + 9)
XV = 15 (10 + 5)	XX = 20 (10 + 10)

More about Roman Numbers

1. To write from 21 through 29 in Roman numbers, put numerals I to IX to the *right* of XX. How is 30 written?

XXI = 21 (20 + 1)
XXII = 22 (20 + 2)
XXIII = 23 (20 + 3)
XXIV = 24 (20 + 4)
XXV = 25 (20 + 5)
XXVI = 26 (20 + 6)
XXVII = 27 (20 + 7)
XXVIII = 28 (20 + 8)
XXIX = 29 (20 + 9)
XXX = 30 (10 + 10 + 10)

2. To write from 31 through 39 in Roman numbers, put numerals I to IX to the *right* of XXX.

XXXI = 31 (30 + 1)
XXXII = 32 (30 + 2)
XXXIII = 33 (30 + 3)
XXXIV = 34 (30 + 4)
XXXV = 35 (30 + 5)
XXXVI = 36 (30 + 6)
XXXVII = 37 (30 + 7)
XXXVIII = 38 (30 + 8)
XXXIX = 39 (30 + 9)

3. Write these Arabic numbers as Roman numbers:

1 5 9 13 15 18 20 25 30 33 35 39

4. Write the Arabic numbers for these Roman numbers:

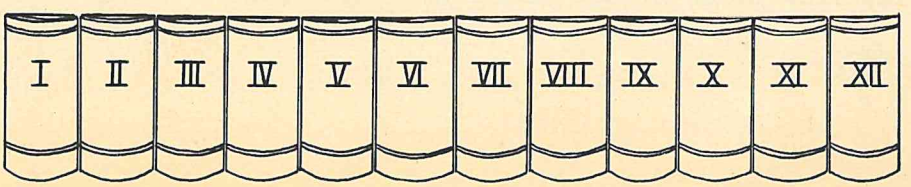
V X XIX XXIV XIII XXV VIII XX XXVI XXXIII

5. Do any buildings in your neighborhood have dates in Roman numerals on them? Can you read the dates?

6. Are Roman numbers used in any of your textbooks?

Now you have learned:

- In a Roman number, a smaller numeral to the *left* of a larger one *subtracts* from the value of the larger one.
- In a Roman number, a smaller numeral to the *right* of a larger one *adds* to the value of the larger one.
- In a Roman number a numeral is *added* as often as it is *repeated*.



Solving Problems

Read each problem carefully. On your paper write A, S, M, or D to show whether you add, subtract, multiply, or divide. If there are two steps write A, S, M, or D for each step. Then answer the question the problem asks.

1. Don is saving his money to buy a small radio for his room. The one he wants to buy costs $9.98. He has saved $8.95. How much more does he need?

2. Flora bought a dress that cost $3.98. How much change should she receive from a $5 bill?

3. A Boy Scout troop hikes at a speed of 3 miles an hour. How long will it take the troop to hike 12 miles?

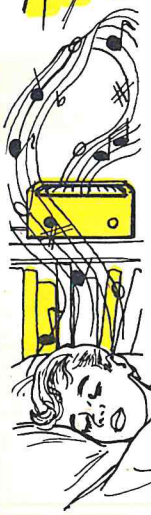
4. Irma bought 5 cans of baby food for her baby brother at $.27 a can. How much did the 5 cans cost?

5. Gregory bought a ball for $.54 and a model airplane for $.24. How much change should he receive from $1.00?

6. John's father works 8 hours a day for 5 days each week. How many hours does he work in a week?

7. Shirley has 50¢ to use in buying 6¢ airmail stamps. How many can she buy and how many cents will she have left?

8. At the drugstore Myrna paid $.60 for a tube of toothpaste, $.38 for a toothbrush, and $.37 for soap. What was the cost of all three items?



9. Henry watched television for 25 minutes on Monday, 18 minutes on Tuesday, 33 minutes on Wednesday, and 47 minutes on Thursday. How many minutes in all was that?

10. Irving went to the store for his mother to buy a quart of milk which cost 27¢. His mother gave him 50¢ and told him that he might buy himself an ice cream cone. It cost 12¢. How much change should he bring back?

Mixed Practice

Copy each example below and find its answer. Then check each answer.

Add:

1.

3	4	5	8	9	7	8	3	8	9	6	7
2	3	7	6	3	4	9	8	7	6	5	9

2.

2	4	3	6	8	6	5	6	4	9	7	4
1	0	2	9	3	1	2	4	8	7	2	3
4	3	5	2	4	5	9	3	5	2	6	8

3.

23	48	63	56	751	284	$6.18	$3.22
20	21	18	7	363	670	.76	5.10
12	92	27	81	202	729	4.19	1.58
34	34	34	15	420	428	2.08	4.29

Subtract:

4.

11	12	13	12	10	15	16	18	14	17
7	6	4	3	2	7	9	9	5	8

5.

46	62	33	45	$.84	724	$3.05	$7.41
21	18	26	29	.48	187	.98	4.52

Multiply:

6.

5	8	8	7	6	6	9	5	4	3	8	7
3	9	6	4	5	9	9	8	5	7	7	7

7.

23	62	40	15	79	$5.24	$2.38	$3.52
3	2	4	5	7	7	5	8

Divide:

8. $4\overline{)8}$ $6\overline{)54}$ $4\overline{)36}$ $9\overline{)45}$ $8\overline{)72}$ $7\overline{)56}$ $4\overline{)20}$ $3\overline{)12}$

9. $7\overline{)14}$ $6\overline{)42}$ $8\overline{)56}$ $7\overline{)28}$ $9\overline{)27}$ $2\overline{)18}$ $8\overline{)72}$ $9\overline{)63}$

10. $5\overline{)38}$ $3\overline{)19}$ $4\overline{)37}$ $8\overline{)62}$ $7\overline{)30}$ $9\overline{)47}$ $6\overline{)49}$ $9\overline{)84}$

Review and Practice

Find the answer for each example below. Check each answer.

Add:

1.

8		11		$.71		858	988
9	81	73		.90	88	9	54
7	7	35	97	.22	6	73	39
5	9	86	6	.16	9	24	47

Subtract:

2.

53	25	26	67	$.95	801	320	$4.00
5	5	19	49	.16	57	46	1.28

Multiply:

3.

33	19	40	32	46	206	257	$.26
3	5	8	7	6	5	7	9

Divide:

4. $5\overline{)35}$ $9\overline{)18}$ $6\overline{)48}$ $8\overline{)40}$ $7\overline{)63}$ $9\overline{)37}$ $8\overline{)59}$ $7\overline{)66}$

Solve these problems:

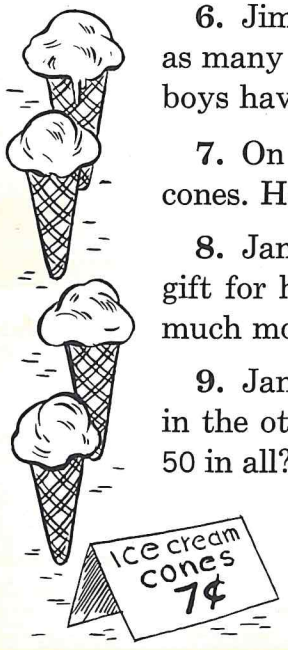
5. Ray set 48 tomato plants in rows with 8 in a row. How many rows of plants did he have?

6. Jim had 8 blue marbles and 15 red marbles. George had as many marbles as Jim had. How many marbles did the two boys have in all?

7. On a Boy Scout hike Henry spent 28¢ for ice cream cones. How many did he buy if the price of each was 7¢?

8. Jane spent $1.09 for a gift for her sister, $1.75 for a gift for her mother, and $1.25 for a gift for her father. How much money did Jane spend for the three gifts?

9. Jane has 19 savings stamps in one book and 24 stamps in the other. How many more stamps does she need to make 50 in all?



To Help You Remember

The page numbers after the questions tell you where to turn for help if you need it.

▶ *To think and talk about:*

1. Carol bought several coloring books for gifts. She knew the price of each book and the number of books that she wanted. How could Carol find the total cost of all of the books? (67)

2. You know the number of children in your room when they are all present and you know the number present today. How could you find the number absent today? (67)

3. You know the number of boys and the number of girls in your room. How could you find the number of children in your room? (67)

4. You know the number of children in your room and you want to separate them into groups of 5. How could you find the number of groups there will be? If the children cannot be separated into 5 equal groups, what could you do? (67, 87)

5. Explain the difference in the meaning of a small Roman numeral when placed to the left of a larger one and when placed to the right of a larger one. (118-119)

6. What is the difference between a two-step problem and a one-step problem? (110) Make a two-step problem for the class to solve. Be ready to tell how to solve it.

▶ *To think about and write:*

1. Find the sum of 164 and 89. (51)

2. Find the difference between 164 and 89. (52)

3. Find the product of 45 and 6. (49)

4. Find the quotient and what is left in $65 \div 7$. (87)

5. How much is $\frac{1}{3}$ of 15? (100-101)

Testing Yourself

Copy each example below and find its answer.

Add:

1.

2	7				$.34	30	934	988
0	6	77		8	.17	49	83	62
3	7	9	93	5	.90	88	57	31
1	8	8	9	97	.44	57	72	26

Subtract:

2.

8	28	39	92	$.47	46	810	416	$7.33
5	7	8	14	.28	18	57	38	2.39

Multiply:

3.

43	24	51	60	59	579	648	$4.37
2	4	6	3	4	8	9	5

Divide:

4. $5\overline{)45}$ $9\overline{)72}$ $8\overline{)56}$ $6\overline{)42}$ $6\overline{)17}$ $5\overline{)34}$ $4\overline{)39}$ $3\overline{)26}$

Solve each problem:

5. There were 54 girls at a camp. How many tents were needed if 6 girls could live in each tent?

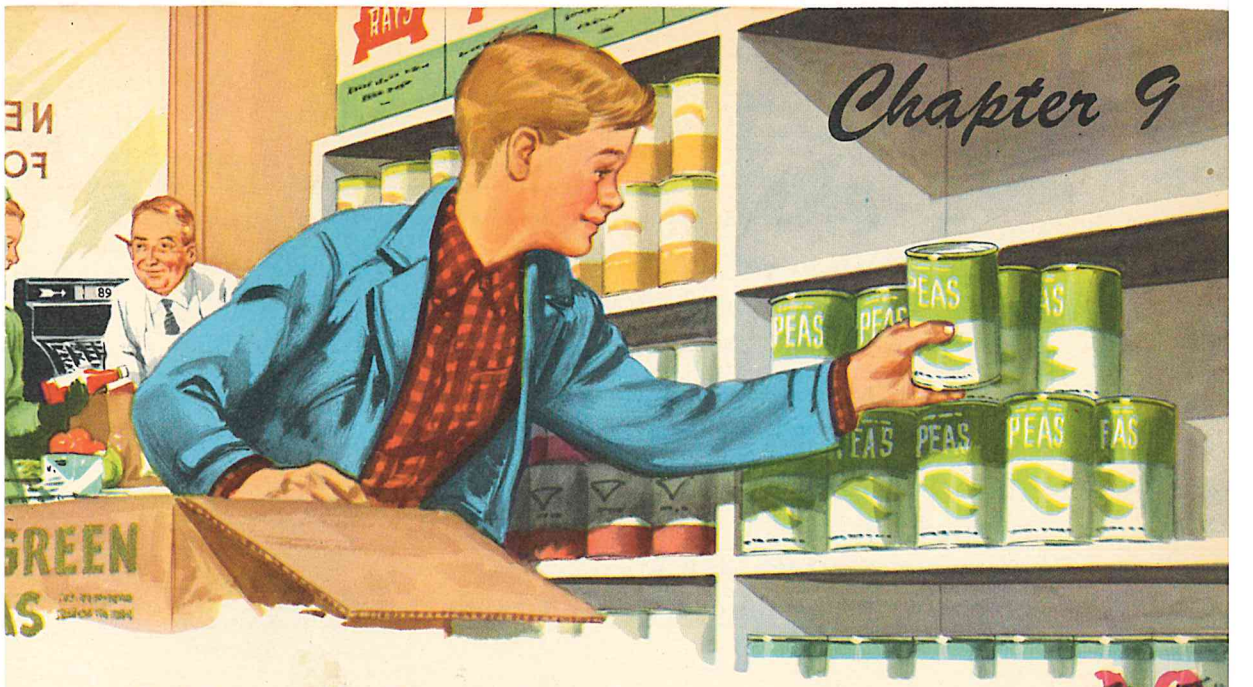
6. At a speed of 45 miles an hour, how far can Bill's father drive in 4 hours?

7. Betty has two storybooks. One has 139 pages and the other 200 pages. What is the difference in the number of pages in the two books?

8. If Bill has 65 cabbage plants and puts 9 in each row, how many rows can he plant and how many plants will be left?

9. Betty bought a game for $.29 and a jump rope for $.39. How much change should she get from $.75?

10. Jim's father drove 183 miles in the morning and 215 miles in the afternoon. How far did he drive that day?



Helping at the Grocery Store

Saturday morning Fred helped his father at the grocery store. The problems below are about some things Fred did. For each problem write A, S, M, or D to show whether you will add, subtract, multiply, or divide. Then find the answer.

1. Fred opened 6 cases of canned peas and put the cans of peas on the shelves. There were 24 cans in each case. How many cans did Fred put on the shelves?

2. If 350 pounds of potatoes were put into ten-pound bags and 90 pounds into five-pound bags, how many more pounds of potatoes were put into large bags than into small bags?

3. If 8 five-pound bags of potatoes were sold for $.49 each, how much did Fred's father get for these potatoes?

4. Fred put 54 cans of tomatoes on the shelf in 6 equal rows. How many cans did he put in each row?

5. One lady spent $1.98 for meat, $.85 for fresh vegetables, and $.35 for fruit. How much did she spend in all?

6. Fred put 48 grapefruit in rows with 6 grapefruit in each row. How many rows of grapefruit were there?

Solving Two-Step Problems

The problems below are two-step problems. The first step in solving each problem is to multiply. You multiply to find out something you have to know before you can take the second step. Study the steps in problem 1.

1. Mary went to the store with 25¢. She bought 3 candy bars at 5¢ each. How many cents did she have left?

Step 1. Multiply to find the cost of all the candy bars. You have to know this before you can take step 2.

Step 2. Subtract the cost of all the candy bars from 25¢.

Step 1	Step 2
\$.05	\$.25
×3	−.15
\$.15	\$.10

Mary had 10¢ left. Do you see why it was necessary to multiply before the subtraction could be done?

Now solve the problems below.

2. Jane bought 5 cans of corn at 17¢ a can. How much change should she get from \$1?

3. Tom had \$5.00. He bought 2 dozen eggs for his mother at 69¢ a dozen. How much money did he have left?

4. There were 40 pounds of apples in a basket. From the basket of apples Roy filled 6 paper bags that held 5 pounds each. How many pounds of apples were still in the basket?

5. A farmer wanted to fill 5 cartons with eggs. Each carton would hold 12 eggs. He had only 52 eggs. How many more eggs did he need to fill the cartons?

6. Jane's mother had \$2.50 in her purse. She bought 3 yards of braid that cost 28¢ a yard. How much money did she have left?

7. Edwin wants to set out 8 rows of tomato plants in his garden with 5 plants in each row. He has 32 plants. How many more plants does he need?

Practice in Subtraction and Division

Copy the examples in rows 1 and 2 and subtract. If you need help in finding any answer turn to pages 52 and 71.

Check the answer for each example. To check your answer in subtraction, add the difference and the subtrahend. The sum should equal the minuend.

1.	642	357	564	645	700	102	$3.07
	60	84	18	98	79	35	.49
2.	468	293	785	818	$3.46	$6.75	$9.00
	235	165	294	329	.98	2.30	6.95

Think the answer for each division fact below and write it quickly. Check each answer by multiplying the divisor by the quotient. The product should equal the dividend.

3.	$2\overline{)6}$	$3\overline{)9}$	$7\overline{)21}$	$8\overline{)24}$	$9\overline{)36}$	$5\overline{)20}$	$3\overline{)15}$	$8\overline{)56}$
4.	$4\overline{)28}$	$3\overline{)12}$	$3\overline{)21}$	$8\overline{)64}$	$6\overline{)30}$	$5\overline{)15}$	$9\overline{)63}$	$4\overline{)8}$
5.	$6\overline{)18}$	$9\overline{)72}$	$8\overline{)48}$	$8\overline{)16}$	$9\overline{)27}$	$6\overline{)12}$	$2\overline{)16}$	$5\overline{)45}$
6.	$7\overline{)35}$	$2\overline{)12}$	$5\overline{)35}$	$9\overline{)81}$	$7\overline{)28}$	$6\overline{)42}$	$7\overline{)49}$	$4\overline{)20}$
7.	$5\overline{)25}$	$2\overline{)18}$	$7\overline{)56}$	$4\overline{)12}$	$3\overline{)24}$	$7\overline{)63}$	$4\overline{)36}$	$6\overline{)24}$

If you missed any quotient above, or could not think the quotient quickly, review pages 62, 63, 81, 82, and 83. Then make practice cards for the facts you missed and learn them.

Below are some uneven division examples. Copy them and find the answers. If you need help turn to page 87.

Now check your answers for the uneven division examples. To check the answers in uneven division, multiply the divisor by the quotient and add what was left. This sum should equal the dividend.

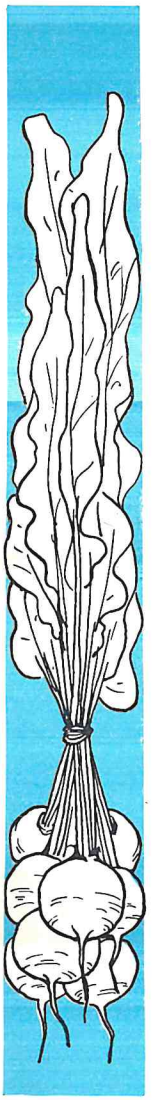
8.	$7\overline{)15}$	$9\overline{)52}$	$8\overline{)39}$	$5\overline{)21}$	$6\overline{)43}$	$4\overline{)25}$	$8\overline{)60}$	$7\overline{)51}$

Solving Problems

Find the answer for each problem on this page.

1. Carol is reading a book which has 252 pages. She has read 77 pages. How many more pages does she have to read?

2. Dick's father had 87 books in his library and bought 15 more. Dick has 28 books. How many more books does Dick's father have than Dick has?



3. Tom pulled 45 beets from his garden. If he ties them in bunches of 8 beets each, how many bunches will he have and how many beets will be left?

4. If 6 girls are to write 36 invitations to a school play, and each wants to write the same number, how many invitations should each girl write?

5. Betty is reading a book which has 186 pages and Patsy is reading one which has 147 pages. How many more pages are there in Betty's book than in Patsy's?

6. Carol bought 8 airmail stamps at 6¢ each. How much change should she get from a dollar?

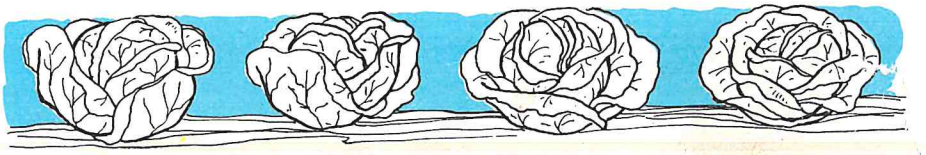
7. Robert bought a bicycle tire for $2.19. How much change should Robert get from $5.00?

8. Joe is to arrange 28 chairs in 4 rows with the same number of chairs in each row. How many chairs should Joe put in each row?

9. Helen's mother bought 5 cans of orange juice which was on sale at $.27 a can. She gave the clerk $2.00. How much change did she get?

10. Oscar has 36 cabbage plants which he wants to plant in 5 rows. How many plants will there be in each row and how many plants will be left?

11. Tom spent $1.19 for gloves and $1.25 for a cap. How much change should he get from $5.00?



More Two-Step Problems to Solve

Sometimes you must multiply and then add to answer the question a problem asks. Read this problem:

1. Mrs. Lee bought 3 quarts of milk at 19¢ a quart, and a bottle of cream for 26¢. How much did she pay in all?

Step 1. Multiply to find out how much the milk cost.

Step 2. Add the cost of the cream to the cost of the milk.

Step 1	Step 2
\$.19	\$.57
×3	+.26
\$.57	\$.83

Mary's mother spent 83¢ in all.

2. Why must you multiply in problem 1 before you can add?

Solve each problem below. For each step in the problem write A, S, or M on your paper to show whether you will add, subtract, or multiply. Show the example for each step.

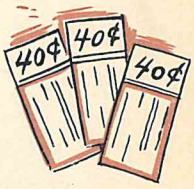
3. Jane bought 4 yards of cloth at 59¢ a yard, and some buttons for 25¢. How much did she pay in all?

4. Billy's mother bought 3 pounds of beef at 89¢ a pound, and a pound of bacon for 69¢. How much did she spend for both?

5. John bought 3 cans of peaches at \$.45 a can. How much change should he get from \$2.00?

6. Edward had \$2.65. He earned \$4.50 and spent \$.87 for a book. How much money had he left?

7. Frank sold 3 children's tickets for the school play at 40¢ each, and a parent's ticket for 75¢. How much did he get for the tickets?



8. Terry had \$2.50 and earned \$.65. How much more money does he need to buy a \$3.75 baseball glove?

9. Mrs. Casey bought 8 ice cream cones at 7¢ each. How much change did she get from \$1.00?

Practice in Addition and Multiplication

Copy the examples in rows 1, 2, and 3, and add. First add down. Then add up to check the answers. If you get the same answer both times it is probably correct.

If you need help in finding the answers for any of these addition examples, review pages 21, 25, 30, 33, 34, 51, and 70.

Add:

1.	7	13	21	40	$.12	$2.35	$ .60	$5.19
	34	45	62	59	.34	4.10	4.29	1.15
	9	79	38	20	.56	.43	2.80	3.17
	8	11	17	36	.78	3.47	1.78	6.29

2.	79						568	976
	986	68	96	465	61	980	45	287
	497	7	8	33	876	54	84	592

3.	326	561	647	831	905	300	653	725
	32	72	95	346	513	485	595	38
	41	13	32	48	730	25	180	255

Copy the examples below, multiply and check. To check your answers in multiplication, multiply carefully again.

If you need help in finding the answer for any of these multiplication examples, review pages 48, 49, 95, and 96.

4.	41	23	50	71	29	18	96	63	78	47
	2	3	5	8	3	4	4	3	6	9

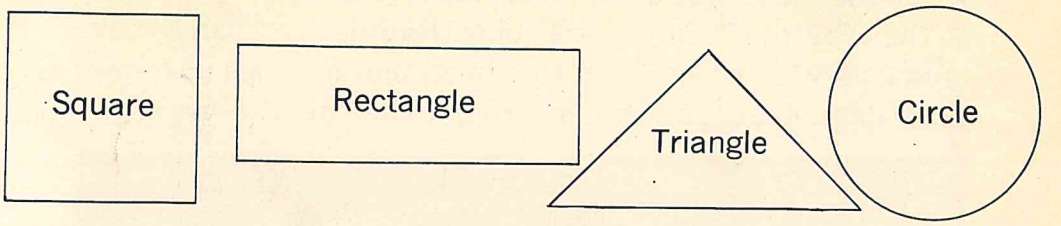
5.	324	416	223	349	297	135	554	238
	2	5	4	2	3	6	7	5

6.	$1.32	$6.30	$4.24	$1.62	$9.70	$4.16	$7.29
	3	3	2	4	5	6	3

If you missed the answer for any example on this page, find out what you did that was wrong. Perhaps you can ask your teacher or another pupil if you cannot find out by yourself.

Circles, Squares, Rectangles, and Triangles

The pictures below show flat shapes which you often see.



Look at the pictures above. Then answer the questions below. Use your ruler to measure if you need to.

1. How many sides has a square? A rectangle?

2. Are all four sides of a square the same length?

3. Are all four sides of a rectangle the same length? Are any of the sides equal? Which?

4. Are all four corners of a square just alike? (We say that the corners are *square.*)

5. Does a rectangle have square corners?

6. What is the difference between a square and a rectangle?

7. Draw a square with sides 1 inch long.

8. Draw a rectangle with two sides 1 inch long and the other two sides 2 inches long.

9. Can triangles have different shapes?

10. Draw a triangle and measure the length of its sides.

11. Name some objects that are the shape of a circle. A square. A rectangle. A triangle.

Now you have learned:

- Circles, squares, rectangles, and triangles are shapes of flat surfaces.

Understanding the Meaning of a Timetable

When you plan to go on a trip by train you need to know when the train will leave your town and when it will get to the town to which you are going. Railroad companies have *timetables* which show this. Bus lines, and air lines also have timetables. Perhaps you can bring a timetable to class.

Central Railroad

Perry to Clinton

Leave Perry	Leave Dalton	Leave Rockton	Arrive Clinton
4:50am	5:25am	5:40am	7:15am
6:00am	6:32am	6:47am	8:15am
7:45am	8:05am	8:15am	9:05am
9:10am	9:30am	9:41am	10:30am
11:30am	11:50am	12:02pm	12:50pm
1:15pm	1:35pm	1:47pm	2:35pm
6:40pm	7:00pm	7:12pm	8:05pm
8:25pm	8:53pm	9:07pm	10:35pm

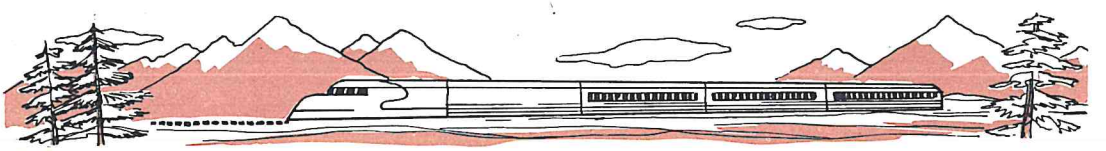
1. Look at the timetable above. Do you see that afternoon time is printed in heavy type?

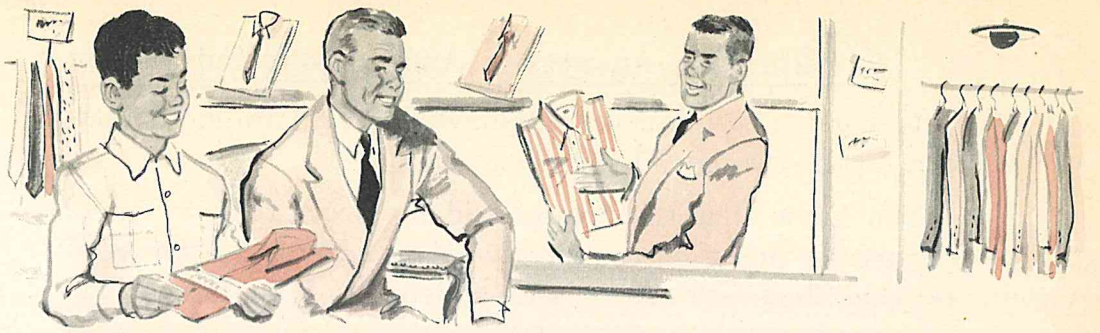
2. Suppose that you live in Perry and want to go to Clinton. You expect to leave about 9 a.m. and want to know when the train will arrive in Clinton. Find the column which has *Leave Perry* at the top. Look down the column until you find the time nearest 9 a.m., which is 9:10 a.m. Follow the 9:10 a.m. line across the timetable to the column with *Arrive Clinton* at the top. You see that the train will arrive in Clinton at 10:30 a.m.

3. At what time does the earliest train leave Perry?

4. If you leave Dalton at 11:50 a.m., when will the train arrive at Rockton?

5. If you want to be in Clinton at 9:30 a.m., when must you leave Dalton?





Estimating Answers to Multiplication Problems

Often you can decide about what the answer to a problem is before you solve the problem to find the exact answer. This is called *estimating* the answer. Read this problem:

1. Mr. Allen wanted to buy 2 shirts at \$2.85 each. He had only \$6.50. Did he have enough money to buy the shirts?

Mr. Allen knew that \$2.85 is a little less than \$3.00. He knew that 2×3 dollars $= 6$ dollars. He estimated the cost of the 2 shirts at \$6.00. He had enough money.

Now find the exact cost of the 2 shirts.

For each problem below select the *estimated* answer which you believe will be nearest the *exact* answer. Then find the exact answer. If you did not select the best estimated answer, find why you were wrong.

2. Last summer Mr. Brown sent his 3 sons to camp. If the cost of staying at camp was \$8.95 a week for each boy, how much a week did Mr. Brown pay? (\$24, \$27, \$30)

3. While the boys were at camp they made 6 camp stools. The material for each stool cost \$.65. How much did the material for the 6 stools cost? (\$36, \$30, \$4)

4. How many children can ride in 4 buses if 49 children ride in each bus? (200, 160, 400)

5. If Tom's father is paid \$9.75 a day for his work, how much does he earn in a week of 5 days? (\$450, \$50, \$500)

Estimating Answers in Addition and Subtraction

1. Larry has 11 marbles and David has 12. How many marbles do the two boys have altogether?

You know that the answer will be larger than 11 or 12 because *the sum is always equal to all the addends together*. You see that there is 1 ten in each addend, so your answer will be at least 20. When you solve the problem, you see that the answer is 23.

2. Tom had 25 stamps. He pasted 10 of them in his stamp book. How many did he have left?

The difference will be less than 2 tens, or less than 20, because when you subtract 1 ten from 2 tens, the difference is 1 ten. When you solve the problem you find that the difference is 15, which is less than 20.

For each problem below select the *estimated* answer which you think will be nearest the *exact* answer. Then solve the problem to find the exact answer. If you did not select the best estimated answer, find why you were wrong.

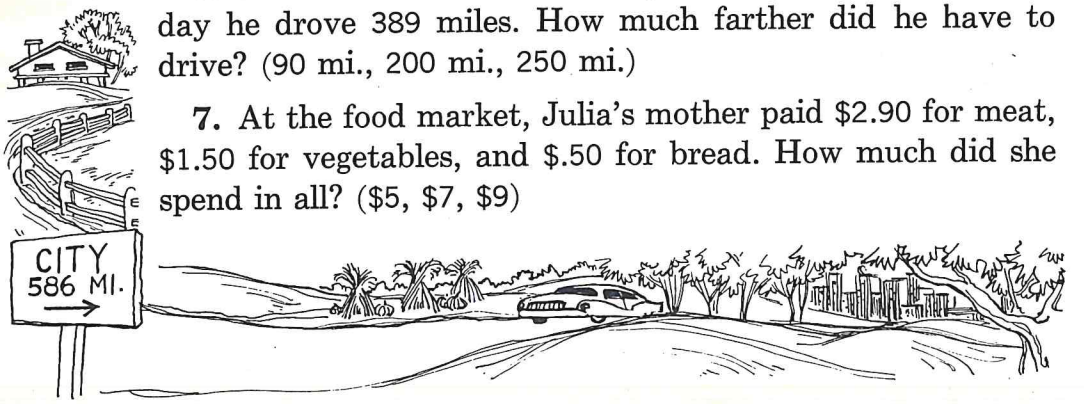
3. June had $.38 and earned $.25 by raking leaves in the yard. How much money did she have then? ($.40, $.60, $.80)

4. Helen bought a reader for $1.03 and a geography book for $1.45. How much did Helen pay for both of the books? ($2.50, $1.50, $3.50)

5. Susan's father is 35 years old. Susan is 9. What is the difference between their ages? (13 yr., 25 yr., 45 yr.)

6. John's father drove to a city 586 miles away. The first day he drove 389 miles. How much farther did he have to drive? (90 mi., 200 mi., 250 mi.)

7. At the food market, Julia's mother paid $2.90 for meat, $1.50 for vegetables, and $.50 for bread. How much did she spend in all? ($5, $7, $9)



Estimating Answers

For each problem below decide what would be a reasonable answer. Then solve the problem. Was your estimated answer about right?

1. The fourth-grade children had \$8.75 in their treasury. They spent \$.80 for a scrapbook. How much money did they have left?

2. Betty's mother bought 3 house dresses at \$3.98 each. How much did all the dresses cost?

3. Tom wants a baseball glove that costs \$3.85. He has \$.69. How much more money does he need?

4. Betty bought a dozen eggs for \$.60 and a magazine for \$.27. How much change should she get from \$1.00?

5. Ann's mother had \$6.49 in her purse. She spent \$.85 for meat. How much money did she have left?

6. Dick spent \$.75 for a pen, \$.25 for paper, and \$.10 for an ink eraser. How much change should he get from \$1.25?

7. Don needs \$1.50 to buy a ball. He has saved \$.99. How much more money does he need?

8. Laura's mother bought a 9-pound ham at \$.67 per pound. How much change should she receive from \$7.00?

9. Sam has 25¢ to use for buying 3¢ stamps. How many stamps can he buy and how much money will he have left?

10. Tom needed 110 stamps to fill his stamp book. One week he bought 25 stamps and his uncle gave him 40 stamps. How many more stamps does Tom need?

Now you have learned:

- You can estimate the answer to a problem to tell whether or not the answer you get is reasonable.

Writing Answers Only

Try to find the answer for each problem below without writing an example. For the first problem think $4 \times 8 = 32$. Write the answer, 32 books. Be ready to give the answer for any of the problems below if your teacher asks you.

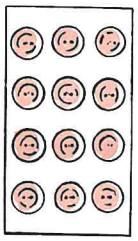
1. There are 8 books on each of 4 shelves. How many books are there in all?

2. Ben bought a fountain pen for $.92 and a pad of writing paper for $.08. How much did he spend?

3. Tom bought a ruler for 5¢, a pencil for 4¢, and a small note pad for 6¢. How much did he spend?

4. Esther had a quarter. She paid 11¢ for an ice cream cone. How much did she have left?

5. If 4 apples cost 16¢, how much does one apple cost?



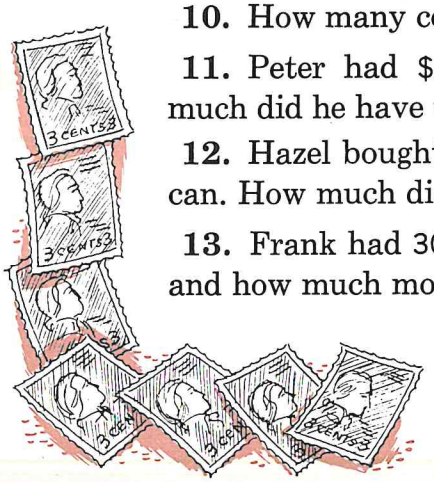
6. Joe bought a geography book that cost $1.75. How much change should he receive from $2?

7. A card of buttons has 4 rows of buttons with 3 buttons in each row. How many buttons are there on the card?

8. Barbara had 50¢ on Monday morning. She spent 10¢ on Monday and 20¢ on Tuesday. How much money did she have left?

9. Harold has 23¢ and wants to buy as many 3¢ stamps as he can. How many stamps can he buy and how many cents will he have left?

10. How many cents are $\frac{1}{2}$ of 16 cents?



11. Peter had $2. He earned $.50 and spent $.25. How much did he have then?

12. Hazel bought 3 cans of peaches for her mother at 50¢ a can. How much did the peaches cost?

13. Frank had 30¢. How many 8¢ pads of paper can he buy and how much money will he have left?

To Help You Remember

The page number after each question tells you where to turn for help if you need it.

▶ *To think and talk about:*

1. Which numbers do you think are easier to use, Arabic, or Roman? Tell why you think so. (118-119)

2. Explain how you check the answer for an addition example. (24, 130) A subtraction example. (22, 127) A multiplication example. (48, 130) A division example. (82, 127)

3. How do timetables help us? (132)

4. What are the differences between a square, a rectangle, a triangle, and a circle? (131)

5. Does estimating the answer to a problem help you decide whether or not your answer is reasonable? Why? (133-135)

▶ *To think about and write:*

Find the answer for each example below. Check each answer so that you can be sure it is correct.

1.
$$\begin{array}{r} \$4.20 \\ 2.76 \\ 5.85 \\ +6.79 \end{array}$$
(70) (130)

2.
$$\begin{array}{r} \$3.94 \\ -1.87 \end{array}$$
(71) (127)

3.
$$\begin{array}{r} \$4.00 \\ -1.25 \end{array}$$
(71) (127)

4.
$$\begin{array}{r} 42 \\ \times 3 \end{array}$$
(48)

5.
$$\begin{array}{r} 327 \\ \times 5 \end{array}$$
(95) (130)

6. $8\overline{)56}$ (82)

7. $6\overline{)39}$ (87, 88)

8. Draw a circle, a square, a rectangle, and a triangle. (131)

Estimate the answer for each of these problems. Then solve the problem. Show on your paper both your estimated answer and the exact answer. (133, 134)

9. Bob and Jean wanted to buy a birthday gift for their mother. It cost \$1.25. Bob had \$.50 and Jean had 45¢. How much more money did they need?

10. George's mother bought him 3 shirts at \$1.75 each. How much did the shirts cost?

Testing Yourself in Subtraction and Division

On page 127 you reviewed the kinds of examples that you have studied in subtraction and division. If you did this review well, you should do well with this test. Work quickly, but take time to check each answer.

Subtract:

1.	8 5	17 9	47 3	96 8	398 24	273 92	826 70	450 16
2.	982 25	102 35	660 97	401 29	300 48	837 295	920 498	612 276
3.	546 502	905 879	714 127	\$9.87 1.75	\$4.00 2.27	\$6.95 2.56	\$2.75 1.98	

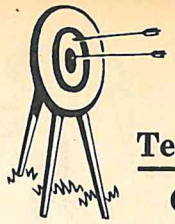
Divide:

4.	$4\overline{)8}$	$6\overline{)6}$	$3\overline{)9}$	$5\overline{)25}$	$2\overline{)18}$	$7\overline{)56}$	$4\overline{)12}$	$3\overline{)24}$
5.	$9\overline{)54}$	$6\overline{)36}$	$4\overline{)32}$	$5\overline{)40}$	$4\overline{)16}$	$8\overline{)40}$	$4\overline{)28}$	$5\overline{)30}$
6.	$4\overline{)36}$	$6\overline{)24}$	$9\overline{)45}$	$7\overline{)14}$	$6\overline{)54}$	$3\overline{)18}$	$5\overline{)45}$	$3\overline{)27}$
7.	$8\overline{)32}$	$8\overline{)72}$	$4\overline{)24}$	$2\overline{)16}$	$7\overline{)28}$	$3\overline{)21}$	$7\overline{)49}$	$8\overline{)64}$
8.	$9\overline{)72}$	$9\overline{)27}$	$8\overline{)48}$	$7\overline{)63}$	$5\overline{)20}$	$7\overline{)42}$	$9\overline{)63}$	$9\overline{)81}$

Divide and show how many left:

9.	$3\overline{)8}$	$3\overline{)10}$	$5\overline{)22}$	$4\overline{)19}$	$6\overline{)25}$	$3\overline{)20}$	$7\overline{)15}$	$4\overline{)34}$
10.	$2\overline{)13}$	$4\overline{)9}$	$9\overline{)29}$	$6\overline{)43}$	$8\overline{)26}$	$4\overline{)13}$	$9\overline{)62}$	$7\overline{)31}$
11.	$6\overline{)32}$	$5\overline{)36}$	$9\overline{)42}$	$8\overline{)34}$	$4\overline{)23}$	$7\overline{)52}$	$9\overline{)78}$	$8\overline{)57}$

If you missed the answer for any example on this page, find out what you did that was wrong. If you need help, perhaps you can ask your teacher or another pupil.



Testing Yourself in Addition and Multiplication

On page 130 you reviewed the kinds of examples that you have studied in addition and multiplication. If you did this review well, you should do well with this test. Work quickly, but take time to check each answer.

Add:

1.

2	6	21	56	40	82	68	65	47	11
60	7	18	19	81	17	25	27	83	10
4	48	27	45	81	90	27	80	55	48
3	3	32	21	30	43	38	19	62	20

2.

$.23	$.17	$2.98	$3.18	$1.95	$4.18	$2.30
.41	.29	5.10	2.25	5.60	3.00	6.51
.82	.35	.51	1.20	4.13	7.42	.73
.03	.61	4.53	.08	2.50	.85	5.22

3.

386	519						241	103
29	408	88	290	615	426		782	427
523	35	985	63	76	287		648	375

Multiply:

4.

12	22	40	31	46	17	25	32	67	54
4	3	2	4	2	8	5	7	6	9

5.

121	531	394	654	782	593	438	349
3	4	2	6	8	5	3	2

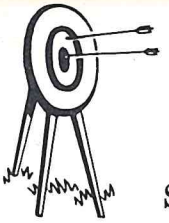
6.

$2.03	$1.95	$2.38	$7.15	$6.53	$3.12	$8.42
2	3	7	4	2	3	5

7.

421	642	326	419	$3.27	$6.39	$4.22
3	4	7	3	5	2	9

If you missed the answer to any example on this page, find out what you did that was wrong. Then you will not make the same mistake again. If you cannot find out by yourself, ask your teacher or another pupil for help.



Testing Yourself in Problem Solving

Solve each problem:

1. Tom had 35 marbles. He bought 15 marbles. The next day he counted his marbles. There were 43. How many were gone?

2. There were 9 children at Betty's party. If 3 children sat at each table for lunch, how many tables were used?

3. A farmer had 225 chickens for sale. He sold 86 of them. How many were left?

4. John's mother bought 4 quarts of cherries at $.36 a quart. How much change should she receive from $5.00?

5. In the music room at the Barnard School there are 14 seats in each of 4 rows. How many seats are there in all four rows?

6. There are 232 pages in Jack's book. He has read 95 pages. How many pages does he have left to read?

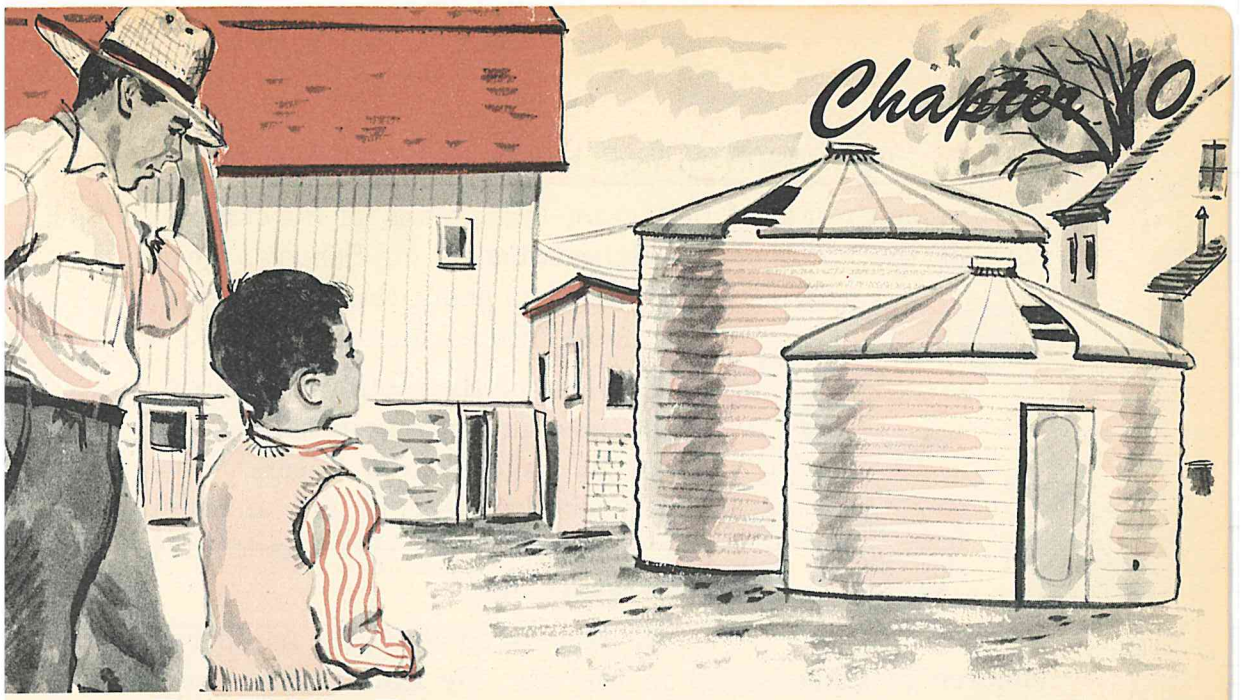
7. On a Saturday afternoon Mrs. Holt took Sandra and her friend, Susan, to a movie. Mrs. Holt's ticket cost $.70 and each of the girl's tickets cost $.36. How much did all three tickets cost?

8. Ned got 19 extra chairs from the library for the assembly program. He put the same number of chairs in each of 3 rows. How many chairs did he put in each row and how many were left?

9. At a special sale Nancy bought a blouse for $1.19 and a skirt for $3.89. How much did she pay for both?

10. The fourth-grade children took 300 Christmas seals to sell. The boys and girls divided up into two teams. The first day the boys' team sold 48 seals and the girls' team sold 46. How many seals were left to be sold?

11. Sue wants to put 24 cookies in 3 boxes with an equal number in each box. How many should she put in each box?



Tom Visits a Farm

Each problem below tells something about Tom's visit to Mr. Brown's farm. Read each problem and find the answer.

1. Mr. Brown told Tom that there were 555 bushels of wheat in one grain bin and that in the other bin there were 320 bushels. How many bushels of wheat were there in both bins?

2. There were 320 bushels of wheat in the small bin. Mr. Brown took 25 bushels from the small bin to sell to a neighbor and 48 bushels to sell to a feed store. How many bushels were left in the small bin?

3. Mr. Brown said that he had 225 chickens in one chicken house and 193 chickens in the other chicken house. How many chickens in all did he have in the two chicken houses?

4. Tom sold a lady a box of strawberries for $.35 and a bunch of asparagus for $.29. She gave him a $5.00 bill. How much change should Tom give the lady?

5. A neighbor wanted to buy 5 bushels of oats. A bushel of oats weighs 32 pounds. How many pounds of oats did the neighbor want?

The Children Visit the Superintendent's Office

The teacher of the fourth grade made plans for the children to visit the office of the Superintendent of Schools. Read each problem about the visit and find the answer for each question.

1. Some of the mothers offered to take the children in their cars. There were 33 children and 6 cars. How many children should ride in each car and how many cars should take one extra child?

2. Jack asked about the number of children in kindergarten in the city. He learned that there were 327 in the morning classes and 238 in the afternoon classes. How many were there in all?

3. The record showed that there were 352 children in the Washington School and 729 in the Lincoln School. How many children were there in both schools?

4. The record showed that there were 478 first graders and 459 second graders in the schools. How many more children were there in the first grade than in the second?

5. The children learned that there were 3 fourth-grade classes in the largest school in the city. There were 35 children in each of these classes. How many children were there in all the fourth-grade classes in this school?

6. The school calendar which had been planned by the Board of Education showed that there were 180 days in the school year. Five of these 180 days were holidays. How many days were the schools open?

7. The children learned that last year it cost the school district $245 for each child in school. The year before, the cost was $236. How much had the cost increased in one year?

Adding and Subtracting Three- and Four-Place Numbers

1. Study the addition in A. One addend is a four-place number. The sum is a *five-place* number. The fifth place is called *ten-thousands'* place. The sum of thousands was 10. The 10 *thousands* were changed to 1 *ten-thousand*. The answer is *ten thousand, one hundred thirty-one*. Read it.

A

TTh	Th	H	T	O
	9	3	8	6
+	7	4	5	
1	0	1	3	1

B

$$\begin{array}{r} \$\ 93.86 \\ +7.45 \\ \hline \$101.31 \end{array}$$

2. Example B shows addition of money numbers. The addition was done as it was in example A. Notice that the dollar sign and the cents point were used correctly. Read the answer.

Use what you learned above. Copy, add, and check:

3.

$32.41	939	345	$43.62	654	9860
3.12	841	9530	.51	792	920
4.23	1324	723	3.95	6983	759

4.

$60.23	415	9584	$13.79	339	9257
5.07	2905	464	2.86	5881	973

5. Study the subtraction in example C. Before you can subtract, 1 *thousand* must be changed to 10 *hundreds*, 1 hundred changed to 10 tens, and 1 ten changed to 10 ones. Read the answer.

C

Th	H	T	O
5	0	0	0
− 4	6	9	
4	5	3	1

D

$$\begin{array}{r} \$50.00 \\ -4.69 \\ \hline \$45.31 \end{array}$$

6. Example D shows subtraction of money numbers. The subtraction is done as it was in example C. Read the answer.

Use what you have learned. Copy, subtract, and check:

7.

9275	$60.90	1234	$51.29	4007	7543
233	9.10	143	2.34	562	428

8.

2953	$41.40	7062	$16.30	3801	1000
687	5.79	395	2.58	932	123

Adding and Subtracting Four-Place Numbers

You add and subtract thousands in the same way you have learned to add and subtract ones, tens, or hundreds.

1. Study example A. Tell how the addition is done. Notice that 10 *thousands* were changed to 1 *ten-thousand*. The sum, *eleven thousand twenty-three*, may be written 11,023. The comma after thousands makes the number easier to read.

A
$$\begin{array}{r} 9768 \\ +1255 \\ \hline 11023 \end{array}$$

2. Study the subtraction in example B. What must be done before you can subtract? Explain how to find the answer. Read the answer.

B
$$\begin{array}{r} \$40.05 \\ -16.89 \\ \hline \$23.16 \end{array}$$

Add and check:

3.	8700	\$67.64	2624	3456	4597	\$72.23
	1056	91.05	4765	7831	6601	24.86
4.	2080	\$47.62	6541	1479	7353	\$51.25
	8020	19.53	3876	2308	1619	73.49
5.	3028	\$70.15	2165	5240	3537	\$14.25
	2043	49.20	3210	1307	2150	10.50
	604	23.19	1050	2065	4002	15.75
	1800	38.72	1325	4000	6041	19.00

Subtract and check:

6.	3896	\$75.96	2948	8349	\$40.99	6594
	2851	27.84	1073	2870	15.10	1249
7.	9382	\$58.17	4463	3020	\$18.05	9900
	7955	10.49	2985	1234	11.48	1952

Now you have learned:

- You add or subtract *thousands* in the same way you add or subtract *ones*, *tens*, or *hundreds*.
- You change 10 thousands to 1 ten-thousand, or 1 thousand to 10 hundreds, in the same way you change 10 hundreds to 1 thousand, or 1 hundred to 10 tens.

A Sport Shop Window

1. Dick plans to save his money to buy a pair of athletic shoes and a baseball uniform. How much money does he need?

2. John wants to buy a pair of roller skates and an archery set. How much would both cost?

3. Roy has saved $.98. How much more must he save before he can buy a baseball bat?

4. Julia wants to buy a reel and a reel case. How much would she have to pay for both?

5. Tom has saved $2.00. If he buys a bowstring and a plastic ball, how much money will he have left?

6. If Roy has saved $8.95 and wants to buy an archery set and a bamboo rod, how much more money will he need?

7. What would Harry have to pay for a fielder's glove and a casting rod?

8. Margaret wants to buy a casting rod and a plastic ball. How much money does she need?

9. Alice has saved $3.85 to buy a birthday gift for her father. She wants to buy him a casting rod. How much more money does she need?

Solving Problems

Read each problem carefully. Decide what it tells you and what question it asks. Write A, S, M, or D to show whether you add, subtract, multiply, or divide. In two-step problems write A, S, M, or D for each step. Then find the answer.

1. Doris and her parents took a long trip by automobile last summer. During the first week they drove 1056 miles, the second week they drove 949 miles, and the third week they drove 1284 miles. How far did they drive in the three weeks?

2. The school children of Madison had a Spring Song Festival. They sold 788 tickets for the Thursday evening performance, 916 tickets for Friday evening, and 527 for Saturday afternoon. How many tickets were sold altogether?

3. Sally wanted a sweater that cost \$4.95. She had \$3.25. Then she earned \$.75 and her mother gave her \$.50. How much more money did she need to buy the sweater?

4. Sally bought 3 cans of fruit juice at 29¢ a can. She gave the grocer a dollar. How much change did she receive?

5. A farmer planned to set 75 cabbage plants in 8 equal rows. How many plants can he put in each row and how many plants will he have left?

6. Dick's father took a trip of 1085 miles. He drove 379 miles the first day. How much farther did he have to drive?

7. Ruth had \$.98. She paid \$.15 for fruit, \$.26 for vegetables, and \$.55 for meat. How much money did she have left?

8. Bill and his mother started on a 185-mile trip. They drove for 3 hours at a speed of 35 miles an hour. How much farther did they have to go?

9. Find the cost of a 5-pound beef roast at 89¢ a pound.

10. John had \$2.39. He earned \$.65. Then he bought a book for \$.79. How much money did he have left?

Measuring Distance

To measure distances, we may use a foot ruler, a yardstick, and even an automobile speedometer. Each problem below tells about measuring distances. Find the answer for the question in each problem.

1. In the picture Mark and David are measuring the length of the playground and the length of the fence that the men are building along one side. The playground measured 436 feet long. The men have finished 259 feet of fence. How much more has to be built?

2. The width of the playground is 388 feet. What is the difference between the length and the width?

3. Bill said that it was 56 yards from the street to his back fence at home. How many feet is this? (1 yard = 3 feet)

4. John's father bought a 100-foot roll of wire. He used 35 feet across the back and 26 feet along one side of his garden. How many feet of wire were left on the roll?

5. David measured a city block. He said that it was 447 feet long. Mark measured it and said that it was 439 feet. What was the difference between their measurements?

6. Joan said that when she and her father started a trip in the car, the speedometer read 4685 miles. At the end of the trip it read 4973 miles. How many miles did they drive?

7. A plane left Chicago for the 724-mile flight to New York. After flying 2 hours at 280 miles an hour, how much farther did it have to fly to reach New York?

$\frac{1}{2}$ OF 8 CENTS

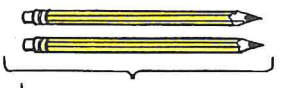
$\frac{1}{2}$ OF 8 CENTS

Finding a Fractional Part of a Number

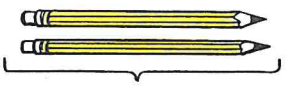
1. The picture above shows 8 cents divided into 2 equal groups. There are 4 cents in each group. You can see that $\frac{1}{2}$ of 8 cents = 4 cents. $\frac{1}{2}$ is the *fraction*, 8 cents is the *whole quantity*. 4 cents is the *fractional part*. You know that to find $\frac{1}{2}$ of a number, you divide the number by 2.

$\frac{1}{2}$ of 8 = ? $\quad 2\overline{)8}$, so $\frac{1}{2}$ of 8 = 4.

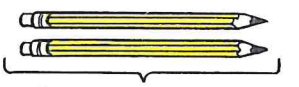
2. Below you see 6 pencils divided into 3 equal groups. There are 2 pencils in each group. You can see that $\frac{1}{3}$ of 6 pencils = 2 pencils. $\frac{1}{3}$ is the fraction. 6 pencils is the whole quantity. 2 pencils is the fractional part. To find $\frac{1}{3}$ of a number you divide it by 3. $6 \div 3 = 2$, so $\frac{1}{3}$ of 6 = 2.



$\frac{1}{3}$ OF 6 PENCILS



$\frac{1}{3}$ OF 6 PENCILS



$\frac{1}{3}$ OF 6 PENCILS

3. You can also see that $\frac{2}{3}$ of 6 pencils = 4 pencils. To find $\frac{2}{3}$ of a number, first divide the number by 3 to find $\frac{1}{3}$ of it. Then multiply the answer by 2 to find $\frac{2}{3}$ of the number.

$\frac{2}{3}$ of 6 = ? $\quad \frac{1}{3}$ of 6 = 2, so $\frac{2}{3}$ of 6 = 2 × 2 = 4. $\quad \frac{2}{3}$ of 6 = 4.

4. In the example, $\frac{2}{3}$ of 6 = 4, which number is the fraction? Which number is the whole quantity? Which number is the fractional part?

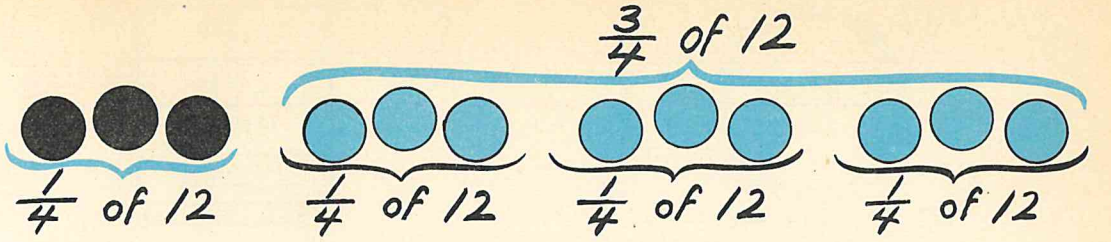
Find the answers for these questions:

5. $\frac{1}{2}$ of 10 dolls = ? dolls

6. $\frac{2}{3}$ of 6 cents = ? cents

7. $\frac{1}{3}$ of 9 books = ? books

8. $\frac{2}{3}$ of 12 apples = ? apples



Fractional Parts of Numbers

1. The picture above shows that when 12 marbles are divided into 4 equal groups, there are 3 marbles in each group. You can see that $\frac{1}{4}$ of 12 marbles = 3 marbles. Which number is the fraction? The whole quantity? The fractional part?

To find $\frac{1}{4}$ of any number, you divide it by 4.

To find $\frac{3}{4}$ of any number, you divide it by 4 and then multiply the answer by 3, like this:

$\frac{3}{4}$ of 12 = ? $\quad 4\overline{)12}$ and $3 \times 3 = 9$. $\quad$ So $\frac{3}{4}$ of 12 = 9.

Find the answers to these questions about a hobby show which the children had at school.

2. There were 8 toy boats on a table at the hobby show. $\frac{1}{4}$ of them were sailboats. How many sailboats were there?

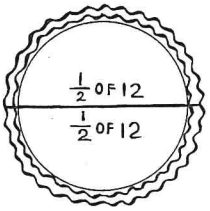
3. Donna brought 12 cutout dolls and Nancy brought $\frac{1}{4}$ as many. How many cutout dolls did Nancy bring?

4. Raymond brought a 12-page stamp book. $\frac{1}{2}$ of the pages had United States stamps on them. How many pages of United States stamps did Raymond have?

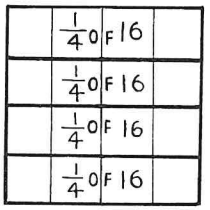
5. Ann brought 8 dolls to the show. She said that $\frac{3}{4}$ of them belonged to her sister. How many of the dolls belonged to Ann's sister?

6. Joe said that $\frac{2}{3}$ of the 21 boys in the fourth grade brought things to the show. How many boys was that?

7. Jerry brought 24 sea shells to the show. He said $\frac{3}{4}$ of them were from Oregon. How many were from Oregon?

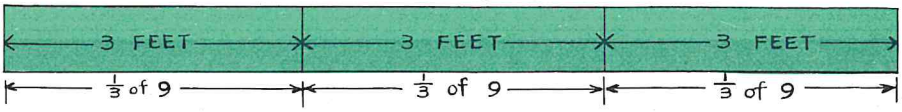


12-OUNCE PIE



16 SMALL SQUARES

9-FOOT BOARD



More about Fractions

1. The 12-ounce pie shown in the picture above is divided into 2 equal parts. How much will $\frac{1}{2}$ of the pie weigh? $\frac{1}{2}$ is the fraction. 12 ounces is the whole quantity. What is the fractional part?

2. The 9-foot board in the picture is divided into 3 equal parts. How long is $\frac{1}{3}$ of a 9-foot board? How long is $\frac{2}{3}$ of a 9-foot board? What is the whole quantity? If $\frac{2}{3}$ is the fraction, what is the fractional part?

3. There are 16 small squares in the large square shown above. The large square is divided into 4 equal parts. How many small squares are there in $\frac{1}{4}$ of the large square? How many small squares are there in $\frac{3}{4}$ of the large square? What is the whole quantity? If $\frac{3}{4}$ is the fraction, what is the fractional part?

Find the answers for these questions:

4. $\frac{1}{4}$ of 12 eggs = ? eggs

5. $\frac{3}{4}$ of 12 eggs = ? eggs

6. $\frac{1}{2}$ of 12 rolls = ? rolls

7. $\frac{2}{3}$ of 18 inches = ? inches

Now you have learned:

- To find $\frac{2}{3}$ *of a number*, first *divide the number by* 3 to find $\frac{1}{3}$ of it. Then *multiply the answer by* 2.
- To find $\frac{3}{4}$ *of a number*, first *divide the number by* 4 to find $\frac{1}{4}$ of it. Then *multiply the answer by* 3.

Solving Problems

For each problem below write A, S, M, or D to show whether you will add, subtract, multiply, or divide. If the problem has two steps, write A, S, M, or D for each step. Then find the answer. Remember:

When you need to:	*Then do this:*
> Find how many in all	Add
> Find the difference	Subtract
> Find how many in all of the equal groups	Multiply
> Find how many equal groups > Find how many in each equal group	Divide

1. Frank can buy a pair of roller skates for $2.55. He has saved $1.87. How much more does he need?

2. Nancy went to the store for her mother. She spent $1.48 for groceries and $.89 for meat. How much change should she get from $5.00?

3. A newsboy sold 89 papers on Monday, 85 papers on Tuesday, and 87 papers on Wednesday. How many papers did he sell altogether?

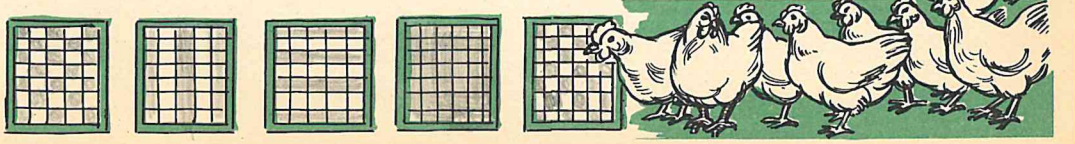
4. There are 285 boys and 279 girls in the Brown School. How many more boys than girls are there in the school?

5. Janet saved $2.00. She paid $.89 for a book and $.05 for a pad of paper. How much money did she have left?

6. Jack's father raises chickens. He has 15 chickens in each of his 5 pens. How many chickens does he have in all of the pens?

7. There are 1007 books in the school library. One day 198 books were in use. How many books were not in use?

8. Jack had 36 chairs to put in 4 equal rows. How many chairs should he put in each row?



The School Newspaper

Each month the children in Lincoln School put out a school newspaper. The children sell the paper to their parents and friends. The price is 5¢ a copy.

Read the problems below and find the answer for each question that the children had to answer.

1. In January one fourth-grade room asked for and received 120 copies of the paper. They found that 9 of the copies were not complete. How many complete copies did they have?

2. Each of the 27 children in the room took 4 copies to sell. How many copies did they take altogether?

3. After two days the children returned 23 copies that they had not sold. How many copies did they sell? (The answer to problem 2 tells how many were taken.)

4. One fourth-grade teacher bought 9 copies to send to some of her friends who were teachers in other schools. How much did she pay in all?

5. There were 111 complete copies at first. The children sold 85 copies and the teacher bought 9. How many complete copies were left?

6. Each of four other rooms asked for $\frac{1}{4}$ of the 17 remaining copies of the paper. How many copies should each room get? How many would still be left?

7. In December one of the fourth-grade rooms sold 125 copies at $.05 each. How much money did they take in?

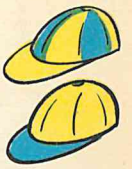
Buying Things at a Sale

At the end of the season stores often sell things at a very low price. The storekeeper wants to make room for new things. So he has a sale to sell the things he already has.

Some of the facts are missing from each of the problems on this page. You can find the missing facts in the newspaper clipping at the right. Find the answer for the question in each problem.

REG. $3.29 GIRLS' JACKETS
Sports Style, Sizes 7 to 14 . . . . . $1.44
REG. $3.19 GIRLS' SKIRTS
Summer Print Cotton $1.47
REG. $3.98 GIRLS' SUN DRESSES
With Boleros. Sizes 7 to 14 . . . . $2.49
REG. $1.00 BOYS' BASEBALL CAPS
Assorted Colors. Small, Med., Large . . . . . $ .67
REG. $1.69 SPORT SHIRTS
Short or Long Sleeves. Sizes 4 to 12 . . . . . $1.09

1. Janet wanted to buy a sun dress. How much could she save by buying the sun dress at the sale?



2. Don and Bill's mother bought 2 baseball caps at the sale price. How much change should she get from $2.00?

3. Jane had saved $3.29 to buy a girl's jacket. She bought it at the sale price. How much money did she have left?

4. Mary bought a skirt at the sale. How much less did she have to pay than the regular price of the skirt?

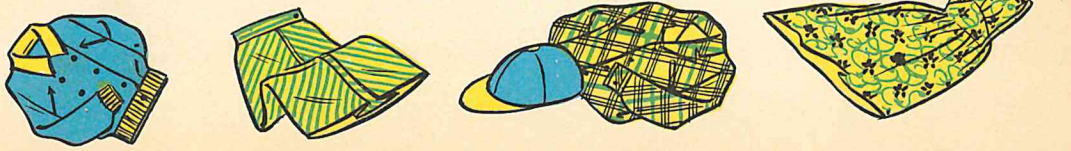
5. How much should Helen's mother pay for a jacket, a skirt, and a sun dress at the sale prices?

6. John bought a baseball cap and a sport shirt at the sale. How much did he pay for both?

7. Herbert bought 2 sport shirts and a baseball cap at the sale prices. How much did he pay altogether?

8. Sally wants to buy a cotton skirt and a sun dress. How much change should she get from $5.00?

9. Frank had $2.00 and bought a sport shirt and a baseball cap. How much money did he have left?



Review and Practice

To solve problems, you must be able to add, subtract, multiply, and divide correctly. Test yourself by finding the answers for these examples. Check each answer.

Add:

1.

85	\$5.95	371	\$4.36	412	7634	5632
76	.38	489	5.21	534	921	3781
64	.76	46	3.74	56	2358	4129
20	.25	853	2.81	9308	1420	2008

Subtract:

2.

200	\$8.98	106	\$9.50	3007	4103	9402
16	.06	7	2.68	69	8	3586

Multiply:

3.

237	456	769	684	\$3.48	\$2.65	\$4.98
3	9	3	7	6	8	5

Divide:

4. $3\overline{)27}$ $7\overline{)28}$ $8\overline{)56}$ $6\overline{)42}$ $5\overline{)31}$ $8\overline{)42}$ $4\overline{)17}$ $9\overline{)47}$

Solve these problems:

5. If 8501 persons live in Springfield and 3750 live in Riverdale, how many more persons live in Springfield than in Riverdale?

6. John bought 2 pairs of gloves for 39¢ a pair. How much change should he get from a dollar?

7. If the boys placed 85 chairs in rows with 9 chairs in each row, how many equal rows could they make and how many chairs would be left?

8. When the paper collector weighed bundles of waste-paper, John wrote down the weights like this: 152 pounds, 281 pounds, 274 pounds, and 190 pounds. What was the total?

To Help You Remember

The page numbers following the questions, examples, or problems tell you where to turn if you need help.

▶ *To think and talk about:*

1. Is adding and subtracting four-place numbers different from adding and subtracting three-place numbers? How is it different? (70, 71, 144)

2. Is 43,500 a five-place number? Name the five places. Tell what each figure means. Read the number. (7, 143)

3. Do addition facts help you with subtraction? How? (17) Do multiplication facts help you with division? How? (63)

4. Why do you divide 15 by 3 to find $\frac{1}{3}$ of 15 cents? (101, 148)

5. In the example $\frac{2}{3}$ of 9 = 6, what is $\frac{2}{3}$ called? What is 9 called? What is 6 called? How do you find $\frac{2}{3}$ of 9¢? (148)

6. Are the dollar sign and cents point important in money numbers? What would \$10.75 mean if you forgot the cents point? (7, 9, 10,)

7. Would you use inches, feet, or yards to measure the length of a city block, or a school playground? Why? (38, 147)

8. How do you solve an arithmetic problem? (109, 151)

9. How would you use the Roman numerals I, V, and X to write 3, 6, 4, 9, and 27 as Roman numbers? Why? (118, 119)

▶ *To think about and write:*

1. Find the sum of 5765 and 6387. (144)

2. Find the difference between \$15.00 and \$11.75. (144)

3. Find the product of 6 × \$8.92. (96)

4. Find the quotient and how many left for 26 ÷ 4. (87)

5. Copy, and write the answers:

$\frac{1}{3}$ of 21 = ? (101) $\frac{2}{3}$ of 21 = ? (148) $\frac{3}{4}$ of 36 = ? (149)

Testing Yourself

Copy the examples below and find the answers.

Add:

1.

97	$1.60	109	$1.37	2998	6450	9975
8	.07	9	.08	6	29	45

2.

65	$4.22	624	$ .68	462	211	5943
8	3.78	45	.95	9287	2561	2781
94	5.63	378	7.40	643	3487	4625
86	1.27	424	.39	142	530	3756

Subtract:

3.

403	$5.00	7645	$6.53	730	700	8003
307	.09	35	.98	45	513	4255

Multiply:

4.

723	428	647	575	$5.84	$3.96	$6.90
3	7	4	9	5	6	8

Divide:

5. $9\overline{)18}$ $5\overline{)30}$ $6\overline{)48}$ $7\overline{)49}$ $4\overline{)23}$ $3\overline{)22}$ $6\overline{)38}$ $7\overline{)65}$

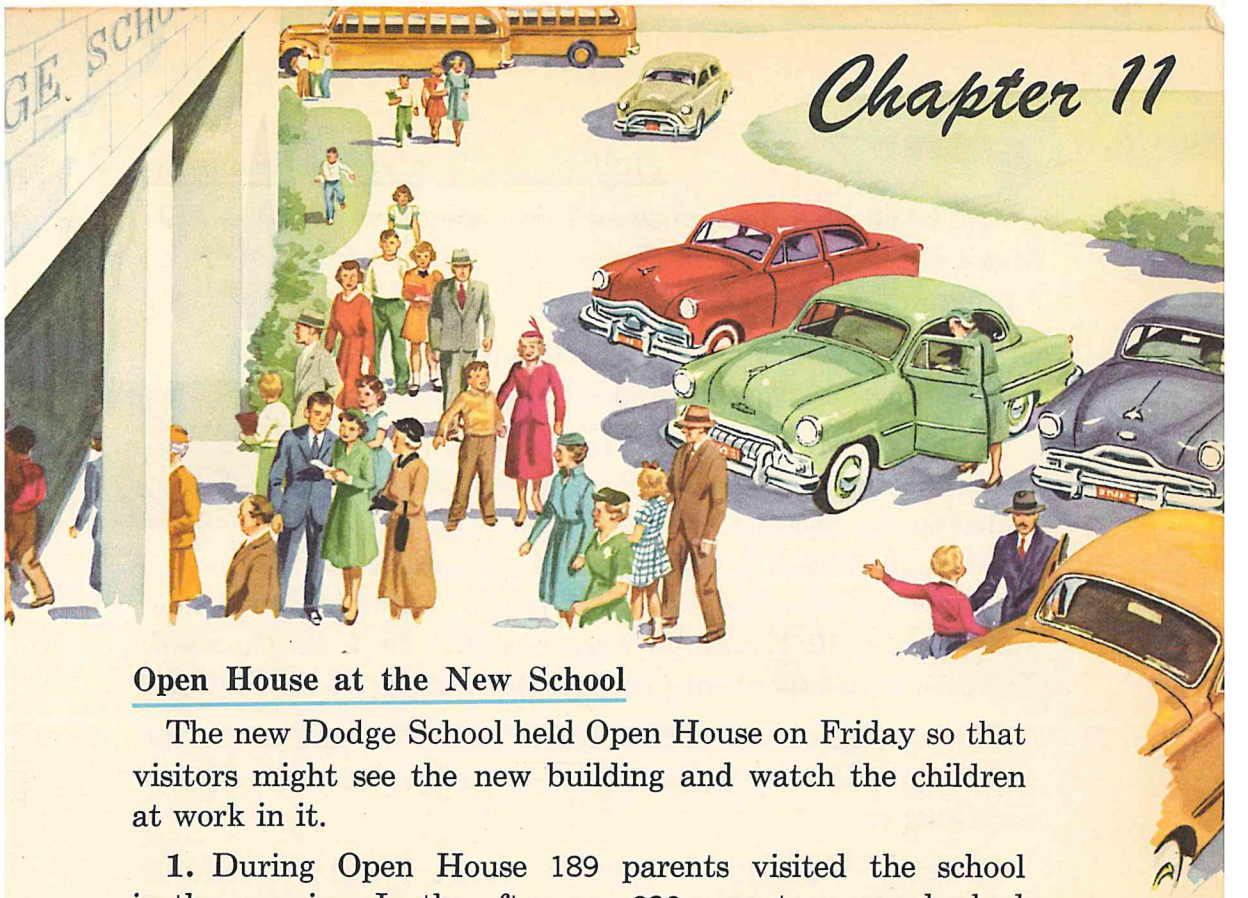
Solve these problems:

6. Judy had $1.98. She wanted to buy a doll for $.98 and a doll bed for $1.50. How much more money did she need?

7. The fourth grade ordered 9 new books at $1.29 each. How much did the 9 books cost?

8. John helped his father tie green onions in bunches of 8 each. How many bunches could they get from 75 onions, and how many onions would be left?

9. The high school basketball team has played four games. There were 1236 tickets sold at the first game, 1318 at the second game, 1229 at the third game, and 1206 at the fourth. How many tickets were sold at the four games?



Chapter 11

Open House at the New School

The new Dodge School held Open House on Friday so that visitors might see the new building and watch the children at work in it.

1. During Open House 189 parents visited the school in the morning. In the afternoon 230 parents came who had not been there in the morning. How many parents visited the school altogether?

2. In the morning the school chorus sang to three groups of parents in the music room. In the first group there were 57 parents, in the second 38, and in the third 49. How many parents heard the chorus sing?

3. In the afternoon the parents visited classes in the gymnasium. The boys helped the janitor set up chairs for the visitors. They set up 72 chairs in 8 equal rows. How many chairs were there in each row?

4. At the final program in the assembly, 128 children sang, 39 marched or danced, 9 gave a short play, and 47 were members of a speaking choir which recited a poem. How many children took part in the program?

Multiplying Four-Place Numbers

1. The city auditorium seats 3255 persons. During the children's Music Festival, all the seats were taken for each of the 4 programs. How many persons came to the Music Festival?

You know how to multiply ones, tens, and hundreds. *Thousands* are multiplied in the same way.

$$\begin{array}{r} 3{,}255 \\ \times 4 \\ \hline 13{,}020 \end{array}$$

Study the multiplication in the example for the problem. In working the example, 2 *tens* were added to the product of tens. Think why. 2 *hundreds* were added to the product of hundreds. Think why. 1 *thousand* was added to the product of thousands. Why? Then 10 *thousands* were changed to 1 *ten-thousand*. Thirteen thousand twenty persons came to the Music Festival.

Find the answer for each example below. Be sure to use the dollar sign and cents point correctly in money numbers. Check each answer.

2.	1320 ×3	\$12.10 ×4	8400 ×2	1715 ×4	4311 ×4	\$22.62 ×3
3.	2432 ×4	\$40.20 ×6	4753 ×2	2631 ×5	2214 ×3	\$42.16 ×4
4.	1312 ×7	\$23.12 ×8	1147 ×6	6298 ×2	2345 ×3	\$45.37 ×5

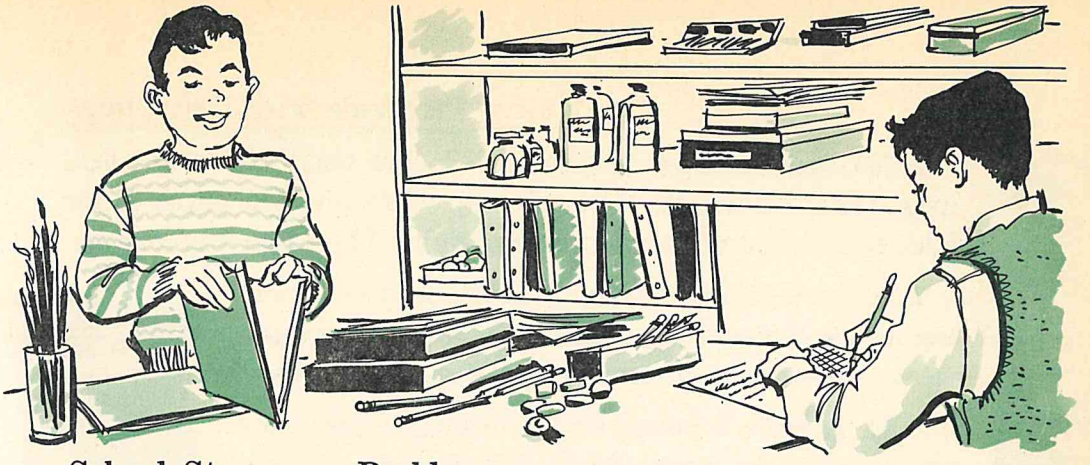
Solve each of these problems:

5. Ruth's mother bought 3 new blankets that cost \$10.95 each. How much did all the blankets cost?

6. New desks were bought for 5 teachers in the new school. At \$65.85 each, how much did the desks cost?

Now you have learned:

- You multiply *thousands* in the same way that you multiply *ones*, *tens*, or *hundreds*.



School Storeroom Problems

Bill and Ray are making a list of things that are in the storeroom. The problems below are about things the boys did. Read each problem and find the answer. Watch for two-step problems.

1. There were 4 large boxes of drawing paper in the storeroom. Each box contained 1440 sheets of paper. How many sheets were there altogether?

2. Bill counted 27 pencils in a box which had held 144. How many of the 144 pencils had been used?

3. The boys found 2 dozen small water color brushes worth $2.04 a dozen and a dozen larger brushes worth $2.52 a dozen. How much were all the brushes worth?

4. The boys counted 7 dozen ink erasers worth 63¢ a dozen. Then they found a box of a dozen pencil erasers worth 55¢. How much were all of the erasers worth?

5. Ray found 6 full boxes of pencils. Each box held 144 pencils. How many pencils were in all of these boxes?

6. The boys counted 42 large notebooks. They put them into empty boxes. Each box held 6 notebooks. How many boxes did they use?

7. Bill counted 8 boxes of blue pencils with 12 pencils in each box. How many blue pencils were there?

Problems with Two Steps

Read each problem below and decide what two steps you must take to solve it. For each step write on your paper A for add, S for subtract, or M for multiply. Then find the answer.

1. John's father works 3 hours in the morning and 4 hours in the afternoon for 5 days each week. How many hours does he work each week?

$$\begin{array}{rr} & 3 \\ A & +4 \\ \hline & 7 \end{array} \qquad \begin{array}{rr} & 7 \\ M & \times 5 \\ \hline & 35 \end{array}$$

Step 1. Add 3 hours and 4 hours to find how many hours he works each day. $3 + 4 = 7$.

Step 2. Multiply 7 by 5 to find the total number of hours worked per week. $5 \times 7 = 35$.

John's father works 35 hours each week.

Do you see why you had to add before you could multiply?

2. Jane put 24 sugar cookies and 18 chocolate cookies into each one of 6 boxes for the cookie sale. How many cookies did she put into all the boxes?

3. In a small dairy, 180 quart bottles are filled with milk and 35 quart bottles are filled with chocolate milk each day. How many quart bottles are filled each week?

4. The three oil tanks on Mr. Perry's oil truck hold 195 gallons, 225 gallons, and 250 gallons. How many gallons of oil can he deliver with his truck in 5 trips?

5. Mary gave a dollar bill to a clerk to pay for 5 pounds of sugar at 6¢ a pound. How much change did she get?

6. Jane bought 4 quarts of milk at $.19 a quart and a bottle of cream for $.26. How much should she pay in all?

7. Tom paid $2.50 for seeds and supplies for his garden. He has sold $2.80 worth of tomatoes and $1.25 worth of sweet corn. How much profit has he made on his garden?

8. Ray earned $1.75 a day for 6 days last summer. After paying $3.25 for a sweater, how much money did he have left?

More Two-Step Problems

Read each problem. Decide what two steps you must take to find the answer, and why you must take each step. Then find the answer for the question the problem asks.

1. Mr. Jones sold a customer 3 bags of coffee. Each bag held 3 pounds. At 79¢ a pound, how much should Mr. Jones charge for the coffee?

Step 1. Multiply to find how many pounds of coffee in three bags. You have to know this before you can take step 2.

Step 2. Multiply the price of one pound by 9 to find the price of 9 pounds.

Step 1	Step 2
3	$ .79
×3	×9
9	$7.11

2. At 35¢ a quart how much will Bill's father have to pay for 2 gallons of oil? (1 gallon = 4 quarts)

3. Fred spent $.39 for lumber and $.05 for nails to build a birdhouse. He plans to build 5 birdhouses in all. How much will the materials for 5 birdhouses cost?

4. Jane bought 4 yards of cloth at $.85 a yard and a dozen buttons for $.60. How much should she pay?

5. Jack had $1.25 and got $2.00 for his birthday. He spent $.98 for a pair of gloves. How much money had he left?

6. The grocer charges $.25 for a carton of pop and a $.12 deposit for the bottles. How much should he charge for 6 cartons if the customer has no empty bottles to return?

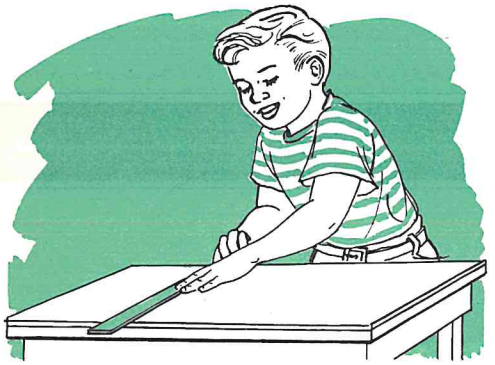
7. Harry sold 6 bunches of carrots at $.05 a bunch and a basket of tomatoes for $.69. How much money should he get?

8. Sally had $1.25 and she earned $.75. Then she spent 35¢. How much money did Sally have left?

9. Each week Ray gets $.75 allowance and earns $.50. If he saves all of his money for 3 weeks, how much money will he have at the end of that time?

Learning about Perimeters

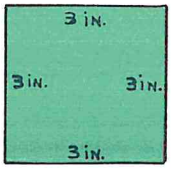
1. Joe wanted to know how much metal strip to buy to put around the edge of a table he and his father had made.



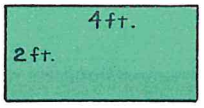
The table top is a rectangle. It is 3 feet wide and 5 feet long. Joe will need 3 feet of metal strip for each end and 5 feet for each side. He added 3 ft. and 3 ft. and 5 ft. and 5 ft. The sum was 16 ft. He could have added 3 ft. and 5 ft. and multiplied the sum by 2. $3 + 5 = 8$. $2 \times 8 = 16$. The distance around the table top is 16 ft.

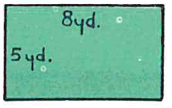
The *distance around a flat surface* is called the *perimeter*. The perimeter of the table top is 16 feet.

2. Look at the square at the right. You know that all 4 sides of a square are the same length. Do you see that the *perimeter* of a square with sides 3 inches long = 4×3 inches? Why? 4×3 inches = 12 inches.



3. Find the perimeter of a 2-inch square. Of a rectangle 4 feet long and 2 feet wide. Of a rectangle 8 yards long and 5 yards wide.





4. Find in feet or inches the perimeter of the floor of your classroom. Of a table or desk in your classroom.

Now you have learned:

The *distance around* a square or rectangle is called the *perimeter* of the square or rectangle.

Finding Fractional Parts

Find the answers for the examples in rows 1 and 2 below. Then for each example tell which number is the *fraction*, which is the *whole quantity*, and which is the *fractional part*. If you need help, review pages 101, 148, 149, and 150.

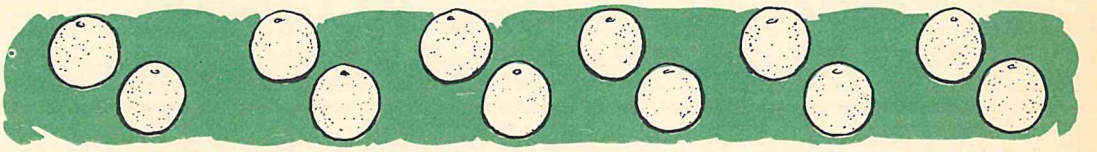
1. $\frac{1}{2}$ of $8¢ = ?¢$ $\frac{1}{3}$ of $6¢ = ?¢$ $\frac{1}{4}$ of $12¢ = ?¢$

2. $\frac{2}{3}$ of $6¢ = ?¢$ $\frac{2}{3}$ of $9¢ = ?¢$ $\frac{3}{4}$ of $12¢ = ?¢$

3. The picture above shows 15 dimes divided into 5 equal groups. There are 3 dimes in each group. You can see that $\frac{1}{5}$ of 15 dimes = 3 dimes. $\frac{1}{5}$ is the *fraction*. 15 dimes is the *whole quantity*. 3 dimes is the *fractional part*. To find $\frac{1}{5}$ of any number, divide the number by 5, like this:

$\frac{1}{5}$ of $15 = ?$. $15 \div 5 = 3$, so $\frac{1}{5}$ of $15 = 3$.

4. Find $\frac{2}{5}$ of 15. Find $\frac{3}{5}$ of 15. Find $\frac{4}{5}$ of 15.



5. The picture above shows 12 oranges divided into 6 equal groups. There are 2 oranges in each group. You can see that $\frac{1}{6}$ of 12 oranges = 2 oranges. $\frac{1}{6}$ is the *fraction*. Which number is the *whole quantity?* Which is the *fractional part?* To find $\frac{1}{6}$ of any number divide the number by 6, like this:

$\frac{1}{6}$ of $12 = ?$. $12 \div 6 = 2$, so $\frac{1}{6}$ of $12 = 2$.

Find the answers for these examples:

6. $\frac{1}{6}$ of $18 = ?$ $\frac{5}{6}$ of $18 = ?$ $\frac{3}{5}$ of $25 = ?$ $\frac{4}{5}$ of $30 = ?$

Finding More Fractional Parts

1. When 24 cookies are divided into 8 equal groups, each group of 3 cookies is $\frac{1}{8}$ of 24 cookies. $\frac{1}{8}$ of 24 = 3. To find $\frac{1}{8}$ of any number you divide the number by 8, like this:

$\frac{1}{8}$ of 24 = ?. 24 ÷ 8 = 3, so $\frac{1}{8}$ of 24 = 3.

For each example below find the answer. Then tell which number is the *fraction*, and what each of the other two numbers is called.

2. $\frac{3}{8}$ of 24 = ? $\frac{5}{8}$ of 24 = ? $\frac{7}{8}$ of 24 = ? $\frac{5}{8}$ of 16 = ?

Write these fractions using numbers:

3. one half one third one eighth one fifth

4. two thirds five sixths three fourths seven eighths

Write these fractions using words:

5. $\frac{5}{8}$ $\frac{3}{4}$ $\frac{3}{5}$ $\frac{1}{6}$ $\frac{2}{3}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{7}{8}$

6. $\frac{5}{6}$ $\frac{1}{3}$ $\frac{4}{5}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{2}{5}$ $\frac{1}{8}$ $\frac{4}{4}$

Find these fractional parts:

7. $\frac{1}{2}$ of 16 marbles = ? $\frac{2}{3}$ of 12 eggs = ? $\frac{1}{3}$ of 27 inches = ?

8. $\frac{5}{8}$ of 56 cookies = ? $\frac{3}{8}$ of 32 yards = ? $\frac{1}{4}$ of 24 apples = ?

9. $\frac{1}{6}$ of 18 oranges = ? $\frac{5}{6}$ of 12 dolls = ? $\frac{7}{8}$ of 40 pears = ?

10. $\frac{1}{8}$ of 16 dollars = ? $\frac{4}{5}$ of 25 cents = ? $\frac{3}{5}$ of 35 miles = ?

11. $\frac{3}{4}$ of 8 quarts = ? $\frac{2}{5}$ of 40 feet = ? $\frac{1}{5}$ of 30 books = ?

Now you have learned:

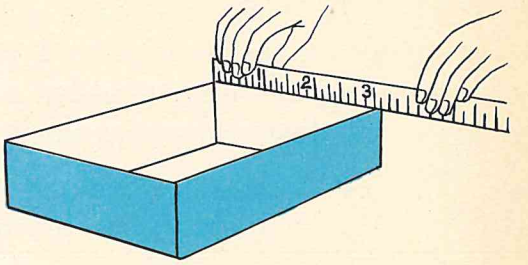
To find $\frac{1}{5}$ *of a number, divide the number by* 5. To find $\frac{2}{5}$ of a number, divide it by 5 and multiply the answer by 2.

To find $\frac{1}{6}$ *of a number, divide the number by* 6. To find $\frac{5}{6}$ of a number, divide it by 6 and multiply the answer by 5.

To find $\frac{1}{8}$ *of a number, divide the number by* 8. To find $\frac{7}{8}$ of a number, divide it by 8 and multiply the answer by 7.

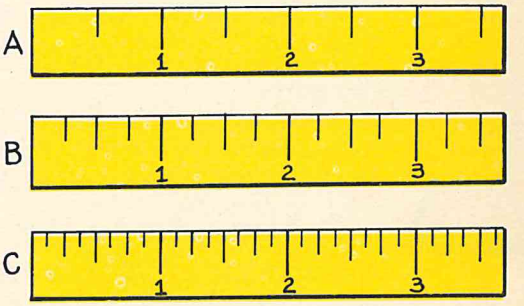
Measuring Carefully

Tom wanted a stiff piece of paper to cover the bottom of a box. By measuring carefully, he decided that he needed a piece of paper $3\frac{1}{8}$ inches wide.



1. Look carefully at the ruler Tom is using. Each inch is divided into 8 equal parts. Each part is called $\frac{1}{8}$, or an eighth of an inch. Do you see that there are 8 eighths in each inch?

These pictures show 3 ways in which an inch can be divided. Ruler A is divided into half inches. Ruler B is divided into fourth inches. Ruler C is divided into eighth inches.



Use the pictures above to help you answer these questions.

2. How many half inches do you see in each inch?

3. How many eighth in. do you see in each in.?

4. How many fourth in. do you see in each half in.?

5. How many eighth in. do you see in each quarter in.?

6. $\frac{1}{4}$ in. and $\frac{1}{4}$ in. and $\frac{1}{4}$ in. = how many fourth in.?

7. $\frac{1}{8}$ in. and $\frac{1}{8}$ in. and $\frac{1}{8}$ in. = how many eighth in.?

Look at the pictures again. Tell which is longer:

8. $\frac{1}{8}$ inch or $\frac{1}{4}$ inch

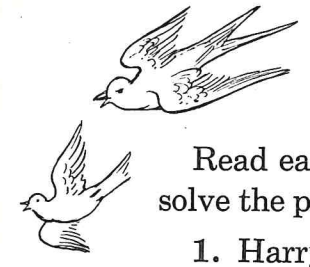
9. $\frac{5}{8}$ inch or $\frac{3}{4}$ inch

10. $\frac{3}{8}$ inch or $\frac{1}{2}$ inch

11. $\frac{7}{8}$ inch or $\frac{1}{2}$ inch

Now look at the pictures again. Then tell what number belongs where you see a question mark below.

12. $\frac{1}{2}$ in. = $\frac{?}{4}$ $\quad$ $\frac{3}{4}$ in. = $\frac{?}{8}$ in. $\quad$ $\frac{7}{8}$ in. = $\frac{1}{2}$ in. + $\frac{?}{8}$ in.



Solving Problems

Read each problem carefully. Decide how to solve it. Then solve the problem.

1. Harry is making a bird feeder. The floor is a rectangle 12 inches wide and 16 inches long. He wants to cut a strip of building paper to go around the outside edges of the floor. How long should the strip be?

2. Margaret saves $\frac{1}{5}$ of all the money she earns. She earned 40¢ by helping her brother rake leaves. How much of it should she save?

3. Mrs. Clark bought suits for her 2 sons, Don and Dick. The suits cost $14.95 each. How much did she pay for both the suits?

4. Mrs. Dale paid $6.98 for Barbara's dress. She gave the clerk $10.00. How much change did she get?

5. At the election for mayor, Mr. Hansen received 4377 votes and Mr. Williams received 3546 votes. How many votes for mayor were cast for these two men altogether?

6. A jet airplane that travels 495 miles an hour will travel how far in 2 hours?

7. If $\frac{1}{4}$ of the 32 fourth graders were in the school play, how many children from the fourth grade were in the play?

8. There are 9119 books in the school library. Last year there were only 7230 books. How many more books are in the library this year than there were last year?

9. A farmer put 450 baby chicks into each one of 3 chicken houses. How many did he put in the 3 houses altogether?

10. One week 132 bottles of milk were sold in the first grade, 163 bottles in the second grade, 108 in the third grade, and 157 in the fourth grade. How many bottles of milk were sold in all these grades?

Mixed Practice

It is important in learning arithmetic that you know well all the addition, subtraction, multiplication, and division facts and know how to use them in working examples with larger numbers. Try to find the correct answer for each example on this page. If you miss any answer, find out what mistake you made and how to get the right answer.

Add and check:

1.

9	8	5	3	6	5	7	9	7	6	5	7
2	7	4	7	9	8	9	8	7	8	7	6

2.

115				$ .75	4765	$22.98
723	659	291	$6.23	8.32	52	16.26
414	342	426	3.01	4.07	4624	53.26
607	169	897	7.98	5.19	379	46.55

Subtract and check:

3.

16	18	12	12	14	17	14	13	12	10
7	9	8	4	5	8	9	6	5	3

4.

912	500	406	6000	3000	$78.05	$53.62
75	256	79	1483	9	12.86	38.27

Multiply and check:

5.

4	7	7	5	7	8	9	6	4	7	3	4
2	9	5	8	6	4	6	3	9	8	5	3

6.

311	483	694	$5.54	$9.02	4867	$16.42
5	8	7	4	9	3	6

Divide and check:

7. $4\overline{)20}$ $6\overline{)42}$ $5\overline{)25}$ $8\overline{)64}$ $6\overline{)54}$ $9\overline{)27}$ $8\overline{)48}$ $9\overline{)72}$

8. $3\overline{)21}$ $7\overline{)56}$ $9\overline{)63}$ $4\overline{)36}$ $8\overline{)32}$ $9\overline{)45}$ $7\overline{)49}$ $7\overline{)35}$

9. $7\overline{)32}$ $6\overline{)50}$ $3\overline{)26}$ $8\overline{)69}$ $4\overline{)35}$ $5\overline{)31}$ $6\overline{)22}$ $7\overline{)61}$

Buying Gifts

The children in the fourth grade talked about gifts they planned to buy for their brothers or sisters or friends. The problems below are about buying gifts. Read each problem and decide how to solve it. Write A, S, or M for each step. Then find the answer.

1. Sally has $5.00. If she buys a doll for $1.39 and a toy telephone for $1.25, how much money will she have left?

2. John can buy a peg board for $1.79 and a little wagon filled with blocks for $1.39. He has $2.00. How much more money does he need if he is to buy these gifts?

3. Jane decided to buy 3 card games at 79¢ each and a doll for $1.00. How much would she have to pay for all of them?

4. Tom had $.75. He wanted 3 model airplane kits at $.39 each. How much more money did Tom need?

5. Jack can get a racing car for $3.79 and a dump truck for $3.89. What would be his change from $10.00?

6. Patsy would like to buy a cloth doll that costs a dollar, and doll furniture that costs $1.19. If she bought these things, how much change would she get from $3.00?

7. Shirley looked at a toy piano priced at $3.50 and a toy drum set priced at $1.75. She has $4.00. How much more money does she need to buy the things she looked at?

8. Dick said that he wanted 4 sets of plastic building blocks at $.98 a set. He has only $3.00. How much more money would he need to get the 4 sets?

9. Olga bought a plastic "punch me" doll for her baby sister. The price was $1.32. How much change did she get from $2.00?

10. Helen bought a story book for each of 4 friends. The books cost $.65 each. How much did all the books cost?

Solving Problems Without Writing

These are easy problems which you should be able to solve without using your pencil. Be ready to give the answer to each problem when you are asked to do so.

1. Jack bought an ice cream cone for 10¢ and a candy bar for 5¢. How much did he spend?

2. Jean's mother put 8 pieces of candy into a dish. Jean ate $\frac{1}{4}$ of the 8 pieces. How many pieces of candy did she eat?

3. If Homer bought a pad of paper for 12¢ and paid for it with two dimes, how much change should he get?

4. George bought 6 apples at 5¢ each. How much change should he receive from 50¢?

5. June has 9 children at her party and wants to seat an equal number at each of 3 tables. How many will be seated at each table?

6. A table top is a rectangle 3 feet long and 2 feet wide. What is the perimeter of the table top?

7. What is the perimeter of a board 1 foot square?

8. Don bought a pencil for 3¢, a note book for 10¢, and an eraser for 2¢. How much did he spend?

9. Roy is 10 years old and his father is 25 years older than Roy. How old is Roy's father?

10. John goes to school for 5 hours each day. How many hours does he go to school during a school week of 5 days?

11. Stanley had 50¢. He spent 10¢ for carfare and 15¢ for a package of paper. How much did he have left?

12. Lucy's mother paid 45¢ for 5 pounds of sugar. What was the price of each pound?

13. Joe had $1.00 and bought a notebook for 19¢. How much money did he have left?

Find and check the answer for each example on this page.

Add:

1.	2721	4573	4226	6062	2345	$57.87	$88.22
	1637	3246	2805	8918	5435	20.17	13.78
2.	420	67	756	2439	2736	$52.37	$56.11
	213	935	23	157	583	60.80	87.20
	30	424	580	6275	762	1.71	95.21
	145	386	748	3225	4954	10.37	.27

Subtract:

3.	624	5380	7832	8305	7043	$20.00	$29.75
	356	3372	2564	5798	3467	14.98	18.46

Multiply:

4.	245	653	1226	7349	4736	$78.82	$53.06
	4	6	3	2	3	2	8

Divide:

5.	$3\overline{)27}$	$4\overline{)32}$	$7\overline{)63}$	$5\overline{)25}$	$7\overline{)35}$	$6\overline{)48}$	$5\overline{)40}$	$8\overline{)72}$
6.	$7\overline{)21}$	$3\overline{)19}$	$9\overline{)20}$	$5\overline{)17}$	$6\overline{)50}$	$4\overline{)13}$	$7\overline{)46}$	$9\overline{)41}$

Solve these problems:

7. The school bought 2 new slides for the kindergarten playground at $45.50 each. How much did they cost?

8. The regular price of a ball was 45¢. It is on sale at $\frac{3}{5}$ of the regular price. How much does it cost now?

9. Joe's garden is a rectangle 12 feet wide and 18 feet long. How long will a fence around the garden be?

10. The nurse had to weigh 346 children for the medical check-up at school. She weighed 165 children one morning. How many more children had to be weighed that afternoon?

To Help You Remember

The page numbers after the questions, examples, and problems show you where to turn if you need help.

▶ *To think and talk about:*

1. Tell how to find $\frac{1}{8}$ of 32 marbles; $\frac{3}{8}$ of 32 marbles. (164)

2. Tell what *perimeter* means. How would you find the perimeter of a table-top 3 feet square? Of a box 6 feet long and 3 feet wide? (162)

3. Why are some problems called two-step problems? Make up a two-step problem and tell how to solve it. (110, 160)

4. You know there are 9 groups of things with 5 things in each group. How would you find how many things there are in all of the equal groups? (45)

5. You know the number of things there were in all and the number taken away. How would you find how many things are left? (16, 18)

6. How is an inch on a ruler divided? (165)

7. Tell how you have used arithmetic outside of school during the past week.

▶ *To think about and write:*

Find the answers for these examples:

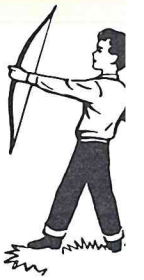
1. $\begin{array}{r} 4675 \\ +7948 \end{array}$ (144) **2.** $\begin{array}{r} \$65.21 \\ -27.64 \end{array}$ (144) **3.** $\begin{array}{r} \$57.46 \\ \times 3 \end{array}$ (158) **4.** $5\overline{)12}$ (88)

5. $\frac{1}{6}$ of 24 = ? (164) **6.** $\frac{5}{6}$ of 36 = ? (164) **7.** $\frac{4}{5}$ of 30 = ? (164)

Solve these problems:

8. Joan's father bought 4 tires at \$18.50 each and a battery for \$14.95. How much did these things cost? (129, 158)

9. Joan's father saw a battery priced at \$24.50. How much less than that did the \$14.95 battery cost? (144)



Testing Yourself

Find the answer for each example on this page.

Add:

1.	523	463	45	4361	2479	$62.78	$45.37
	631	70	367	122	2553	50.64	26.88
	14	132	528	200	1276	23.53	32.46
	201	350	79	247	3254	41.97	59.03

Subtract:

2.	804	7846	9265	4735	8300	$65.01	$43.12
	325	1309	5824	1246	5784	42.76	38.57

Multiply:

3.	365	2198	6231	4612	3062	$51.23	$13.48
	6	4	3	4	9	7	5

Divide:

4. $8\overline{)40}$ $6\overline{)42}$ $4\overline{)28}$ $6\overline{)54}$ $3\overline{)19}$ $5\overline{)30}$ $4\overline{)26}$ $7\overline{)59}$

Solve these problems:

5. Robert has $4.75 in his savings bank. His uncle gave him $.75 and he earned $.25. How much money did he have then?

6. Ray cut a 22-inch strip of wood into 5-inch pieces to use on the birdhouse he was building. How many pieces did he have and how much of the strip was left?

7. The girls were making gifts for veterans in the hospital. There were 9 girls working. Altogether they planned to make 54 bookmarks for gifts. Each girl was to make the same number of bookmarks. How many should each girl make?

8. Mary's mother bought 3 pounds of coffee at 94¢ a pound. How much change should she get from $5.00?

9. Jane's mother paid $1.04 a pound for 3 pounds of steak and $.89 for a pound of butter. How much did she spend?

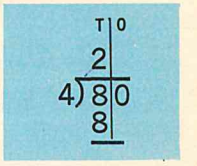
Chapter 12

Dividing Tens

Martha and three of her friends baked 80 cookies to take to a picnic. If each of the 4 girls is to take the same number of cookies, how many will each girl take?

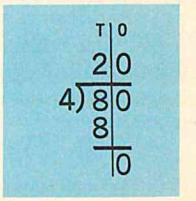
The problem question means, *how many* cookies will there be *in each equal group?*

To answer the question, divide 80 by 4.



Divide the tens: 8 tens = 2 tens × 4. Write 2 in tens' place in the quotient. *Multiply:* 2 tens × 4 = 8 tens. Write 8 below the 8 tens in the dividend. There is no difference between the tens.

Bring down the zero in ones' place. There are *no ones* to be divided, so write zero in ones' place in the quotient.



The quotient is 2 tens or 20. Each girl will take 20 cookies to the picnic.

Now you have learned:

- You divide *tens* in the same way you divide *ones*.

Understanding Uneven Division

1. Suppose you wanted to put 82 cookies into 4 boxes with an equal number in each box. How many cookies should you put into each box, and how many cookies would be left?

Study the example for the problem. Divide the tens and then bring down 2 ones. You can't divide 2 ones by 4 ones because 2 is less than 4. That is why you write a zero in ones' place in the quotient. The 2 ones left are called the *remainder*. The remainder is written after the quotient with the letter r between it and the quotient. The answer to the example is 20, remainder 2.

$$\begin{array}{r} 20\ r2 \\ 4\overline{)82} \\ \underline{8} \\ 2 \text{ left} \end{array}$$

You should put 20 cookies into each box and 2 cookies would be left.

Find the answer for each of these examples:

2. $3\overline{)60}$ $2\overline{)41}$ $5\overline{)50}$ $3\overline{)92}$ $2\overline{)60}$ $4\overline{)40}$ $7\overline{)75}$ $2\overline{)80}$

Read each problem carefully. Then answer the question.

3. Billy's garden is 40 feet long. He wants to divide it into 4 equal parts. How long will each part be?

4. John has 53¢. How many 5¢ marbles can he buy and how many cents will he have left?

5. Mary can cut 3 paper hearts from each piece of red paper. How many pieces of paper will she use for 30 hearts?

6. How many 3¢ valentines can Ruth buy for 62¢ and how much money will she have left?

7. If 40 children are divided into 2 equal groups, how many children will there be in each group?

Now you have learned:

- The number that shows what is left after dividing is called the *remainder*.

Dividing Tens and Ones

1. Mary has a piece of ribbon 63 inches long. She wants to cut it into smaller pieces, each 3 inches long. How many such pieces will there be?

Divide the tens as you have learned to do.
Bring down the 3 ones in the dividend.
Divide the ones: $3 = 1 \times 3$. Write 1 in ones' place in the quotient. *Multiply:* $1 \times 3 = 3$. Write 3 below the 3 ones. There is no difference between the ones. No ones are left.

$$\begin{array}{r} 21 \\ 3\overline{)63} \\ \underline{6} \\ 3 \\ \underline{3} \\ \end{array}$$

Mary will have 21 small pieces of ribbon.

2. Study the division in this example. ⟶

$$\begin{array}{r} 21\ r2 \\ 3\overline{)65} \\ \underline{6} \\ 5 \\ \underline{3} \\ 2 \end{array}$$

Divide the tens as you have learned to do.
Bring down the 5 ones in the dividend.
Divide the ones: 5 cannot be evenly divided by 3. Neither can 4. Try 3. $3 = 1 \times 3$. *Multiply:* $1 \times 3 = 3$. Write 3 below the 5 ones. *Subtract:* $5 - 3 = 2$. The difference (what is left) is the *remainder*. Write the remainder after the quotient as shown in the example.

The answer is 21, remainder 2. It is written 21 r2.

Find the answer for each of these examples:

3. $2\overline{)28}$ $3\overline{)96}$ $6\overline{)66}$ $4\overline{)88}$ $2\overline{)46}$ $3\overline{)39}$ $5\overline{)50}$ $4\overline{)48}$

4. $4\overline{)45}$ $3\overline{)95}$ $5\overline{)58}$ $2\overline{)63}$ $4\overline{)87}$ $2\overline{)67}$ $2\overline{)49}$ $6\overline{)68}$

Solve these problems:

5. Tom had 66 stamps which he wanted to put in rows of 6 in his stamp book. How many rows of stamps will there be?

6. Fred has 85¢. If he uses it to buy oranges that cost 4¢ each, how many oranges will he get and how much money will he have left?

7. At 4 cans for 88¢, what does 1 can of tomatoes cost?

Division Problems

You have learned that there are two kinds of division problems. One kind of division problem tells *how many* things *in all* and *how many equal groups*. Then you have to find *how many* things *in each equal group*.

1. Louis has 90 marbles. He wants to divide them equally among himself and two of his friends. How many marbles will each of the 3 boys get?

The problem tells you that there are 90 marbles *in all* (dividend) and that they are to be divided into 3 *equal groups* (divisor). It asks you to find *how many in each equal group* (quotient).

Here is the example with its answer. What is the answer to the question in the problem?

$$3\overline{)90}\quad 30,\ 9,\ 0$$

Another kind of division problem tells you *how many* things *in all* and *how many in each equal group*. Then it asks you to find *how many equal groups*.

2. There are 84 Boy Scouts to march in a parade. They are to march in rows with 4 boys in each row. How many rows of 4 boys will there be?

The problem tells you that there are 84 boys *in all* and that there are to be 4 boys *in each equal group*. It asks you to find *how many equal groups*.

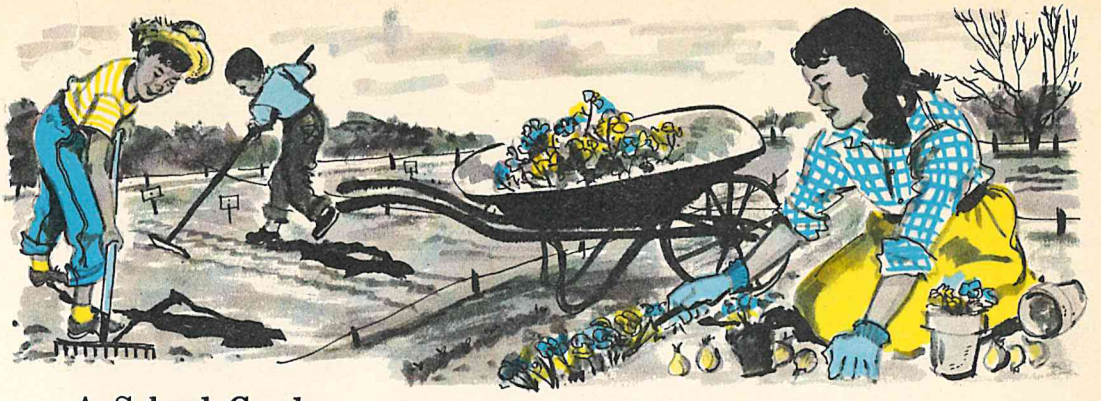
At the right is the example. The answer is 21. There will be 21 rows, or groups, of 4 boys each.

$$4\overline{)84}\quad 21,\ 8,\ 4,\ 4,\ 0$$

Solve these problems:

3. Alice wants to make 3 equal strings of beads. She has 69 beads. How many beads should she put on each string?

4. There will be 60 Boy Scouts at Camp Pine next summer. They will live in tents. There will be 6 boys in each tent. How many tents will they need?



A School Garden

The fourth-grade children at Harper School planned a school garden. Below are some problems that they had to solve. Read each problem and find the answer.

1. The garden strip was 48 feet long. It was to be divided into 4 equal parts. How long should each part be?

2. The children plan to put 84 tomato plants in 8 equal rows. How many plants should they put in each row? How many plants will be left over?

3. They plan to put 30 pansy plants in 3 equal rows. How many plants should they put in a row?

4. The children had 43 tulip bulbs. They decided to have 4 equal rows of tulips. How many bulbs should they put in each row? How many bulbs will be left?

5. They had earned $4.50 to spend for seeds and bulbs. They spent $1.75 for seeds and $2.39 for bulbs. How much money did they have left?

6. The 36 children decided to divide themselves into committees to take turns caring for the garden during the summer. They planned to have committees of 3 children each. How many committees would there be?

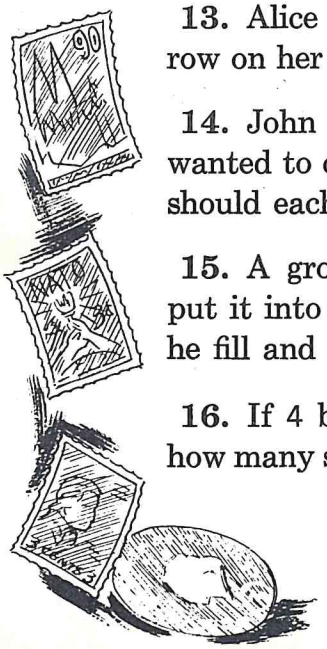
7. In the fall, the children sold 3 bushels of tomatoes at $1.75 a bushel and a bushel of cucumbers for $1.35. How much money did they get for both?

Making Sure of Division

Find and check the answer for each of these division examples:

1.	$6\overline{)6}$	$2\overline{)4}$	$3\overline{)9}$	$3\overline{)6}$	$4\overline{)8}$	$4\overline{)4}$	$2\overline{)8}$	$2\overline{)6}$
2.	$2\overline{)3}$	$3\overline{)7}$	$2\overline{)9}$	$3\overline{)8}$	$4\overline{)5}$	$5\overline{)8}$	$2\overline{)7}$	$3\overline{)5}$
3.	$9\overline{)63}$	$3\overline{)18}$	$8\overline{)72}$	$4\overline{)28}$	$7\overline{)49}$	$6\overline{)24}$	$6\overline{)42}$	$9\overline{)45}$
4.	$7\overline{)56}$	$6\overline{)12}$	$8\overline{)64}$	$9\overline{)81}$	$5\overline{)45}$	$2\overline{)14}$	$9\overline{)54}$	$7\overline{)63}$
5.	$9\overline{)47}$	$7\overline{)16}$	$6\overline{)35}$	$8\overline{)19}$	$6\overline{)20}$	$7\overline{)23}$	$4\overline{)38}$	$3\overline{)26}$
6.	$7\overline{)26}$	$9\overline{)40}$	$8\overline{)30}$	$6\overline{)19}$	$4\overline{)15}$	$5\overline{)12}$	$5\overline{)47}$	$4\overline{)18}$
7.	$2\overline{)20}$	$2\overline{)60}$	$4\overline{)40}$	$4\overline{)80}$	$3\overline{)60}$	$2\overline{)80}$	$3\overline{)90}$	$2\overline{)40}$
8.	$2\overline{)68}$	$3\overline{)66}$	$7\overline{)77}$	$3\overline{)93}$	$2\overline{)46}$	$2\overline{)22}$	$5\overline{)55}$	$4\overline{)84}$
9.	$9\overline{)99}$	$3\overline{)99}$	$6\overline{)66}$	$2\overline{)84}$	$4\overline{)44}$	$2\overline{)42}$	$4\overline{)48}$	$3\overline{)36}$
10.	$3\overline{)98}$	$7\overline{)71}$	$8\overline{)87}$	$4\overline{)81}$	$5\overline{)54}$	$9\overline{)98}$	$3\overline{)37}$	$6\overline{)65}$
11.	$4\overline{)83}$	$4\overline{)85}$	$2\overline{)45}$	$2\overline{)87}$	$4\overline{)89}$	$5\overline{)57}$	$9\overline{)92}$	$5\overline{)59}$
12.	$4\overline{)49}$	$3\overline{)65}$	$8\overline{)89}$	$6\overline{)68}$	$7\overline{)78}$	$2\overline{)27}$	$6\overline{)69}$	$2\overline{)83}$

Solve these problems:

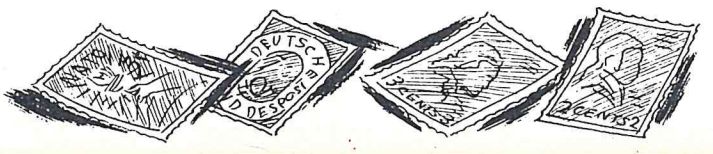


13. Alice worked 30 examples. She had 3 examples in each row on her paper. How many rows of examples did she have?

14. John had a ball of string that was 96 yards long. He wanted to cut it into 3 equal pieces for kite strings. How long should each kite string be?

15. A grocer had 32 pounds of sugar in a large sack. He put it into bags holding 5 pounds each. How many bags did he fill and how many pounds of sugar were left in the sack?

16. If 4 boys divide 89 stamps equally among themselves, how many stamps will each boy get and how many will be left?



Solving Problems

For each problem decide whether to add, subtract, multiply, or divide. Write A, S, M, or D. If the problem has two steps, write A, S, M, or D for each step. Then solve the problem.

1. Mrs. Bond bought 3 pounds of steak at $1.09 a pound. How much did she pay for the steak?

2. If 32 children are lined up in 4's, how many groups of 4 children will there be?

3. Mr. Mason bought a corner lot that is 96 feet wide. How many yards wide is the lot? (3 feet = 1 yard)

4. Mr. Mason's lot is 62 yards long. How many feet long is his lot? (1 yard = 3 feet)

5. Ralph and his father have a garden which is a rectangle 30 feet long and 25 feet wide. How many feet of fence do they need to build a fence around the garden?

6. There are 7 days in a week. How many weeks are equal to 28 days?

7. Jack helped his father pack the salt from a 60-pound bag into 3-pound bags. How many small bags did they fill?

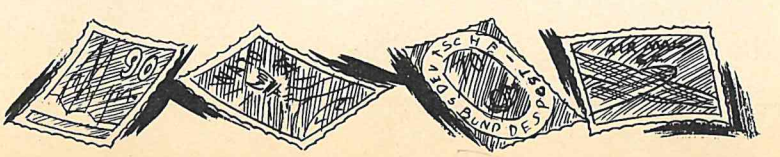
8. Dick saved a quarter a week for 8 weeks. Then he bought a baseball for $1.50. How much money had he left?

9. Janet has $2.05. She wants to buy a doll that costs $3.50. How much more money does she need?

10. Helen had 54 United States stamps and 39 foreign stamps in her book. She also had 114 loose stamps. She gave Sally 25 stamps. How many stamps in all did she have left?

11. Six boys are going to summer camp by train. Each boy's ticket will cost $3.75. How much will all the tickets cost?

12. Find the cost of 2 auto tires at $21.50 each.



Clean-up Week

The children were helping make their city a better place in which to live. The problems below are about some of the things that they did. Read each problem. Think what it tells and what question it asks. Then find the answer.

1. The children made clean-up posters to place in store windows. They made 48 posters. How many boys were needed to deliver the posters if each boy would deliver 4 posters?

2. Some of the children found old newspapers at home. They brought them to school to be sold to the paper collector. They had 69 pounds which they tied into 3 bundles of the same weight. How much did each bundle weigh?

3. The 36 children in the class formed teams to clean up the playground. There were 4 children on each team. How many teams did they have?

4. The twins, John and James, said that they were going to paint 26 fence posts for a fence around their back yard. If each boy is to paint the same number of posts, how many should each boy paint?

5. The fourth-grade class decided to invite the third-grade children to a clean-up party. Three girls planned to write 35 invitations. They wanted to divide the work equally. How many invitations should each girl write, and how many girls would have to write an extra one?

Using Roman Numbers

You know that the Roman numeral I = 1, V = 5, and X = 10. The Roman numeral L = 50, and the Roman numeral C = 100.

You know that a smaller numeral written to the *left* of a larger numeral is *subtracted* from the larger one. IV = 4 (5 − 1). A smaller numeral written to the *right* of a larger numeral is *added* to the larger one. VI = 6 (5 + 1). When a numeral is *repeated* it is *added* as often as it is repeated. XXX = 30 (10 + 10 + 10). That is why:

XL = 40 (50 − 10)
L = 50
LX = 60 (50 + 10)
LXX = 70 (50 + 20)

LXXX = 80 (50 + 30)
XC = 90 (100 − 10)
C = 100

To write numbers 41 through 49 as Roman numbers, put numbers I to IX to the *right* of XL. For 50 write L.

XLI = 41 (40 + 1)
XLII = 42 (40 + 2)
XLIII = 43 (40 + 3)
XLIV = 44 (40 + 4)
XLV = 45 (40 + 5)

XLVI = 46 (40 + 6)
XLVII = 47 (40 + 7)
XLVIII = 48 (40 + 8)
XLIX = 49 (40 + 9)
L = 50

To write numbers 51 through 59 as Roman numbers, put numbers I to IX to the *right* of L. 51 = LI, 59 = LIX. LX = 60. Why?

1. Write numbers 51 through 60 as Roman numbers.

2. Read these numbers and write them as Arabic numbers:

L C XL LVIII LXV LXXII LXXX XC XCIX

3. Write numbers 61 through 100 as Roman numbers.

4. Find four places where Roman numbers are used and tell the class about them.

Changing Tens to Ones in Division

1. Harry and his father set 60 tomato plants in 4 long rows. How many did they set in each row?

The example for the problem asks the question: 60 = how many × 4? Find the answer like this:

Divide the tens: 6 tens = 1 ten × 4 with a remainder. Write 1 in tens' place in the quotient. *Multiply:* 1 ten × 4 = 4 tens. Write 4 below 6. *Subtract:* 6 − 4 = 2. 2 tens are left.

Bring down the 0 in ones' place.

Divide the ones: Change 2 tens and 0 ones to 20 ones. 20 = 5 × 4. Write 5 in ones' place in the quotient. *Multiply:* 5 × 4 = 20. Write 20 below 20. There is no difference between the ones.

How many plants did Harry and his father set in each row?

2. Julie had 63 books to put on the library shelves. She wanted to put the same number on each of 4 shelves. How many books did she put on each shelf, and how many books did she have left?

You can see that this example is worked like the example above, but there are 3 ones left. Julie put 15 books on each of the 4 shelves and had 3 books left.

Find the answer for each of these examples:

3. $4\overline{)56}$ $3\overline{)75}$ $2\overline{)36}$ $5\overline{)60}$ $6\overline{)78}$ $3\overline{)84}$ $2\overline{)24}$ $7\overline{)84}$

4. $5\overline{)63}$ $4\overline{)98}$ $5\overline{)88}$ $4\overline{)55}$ $5\overline{)61}$ $4\overline{)70}$ $2\overline{)33}$ $6\overline{)91}$

Now you have learned:

- If tens are left when you are dividing, change the tens that are left to ones before you divide the ones.

Dividing Money Numbers

1. Study the division in each of these four examples:

A
$$\begin{array}{r} 23 \\ \$.02\overline{)\$.46} \\ 4 \\ \hline 6 \\ 6 \\ \hline \end{array}$$

B
$$\begin{array}{r} 21\text{ r}3¢ \\ \$.04\overline{)\$.87} \\ 8 \\ \hline 7 \\ 4 \\ \hline 3 \end{array}$$

C
$$\begin{array}{r} 13 \\ \$.05\overline{)\$.65} \\ 5 \\ \hline 15 \\ 15 \\ \hline \end{array}$$

D
$$\begin{array}{r} 26\text{ r}1¢ \\ \$.03\overline{)\$.79} \\ 6 \\ \hline 19 \\ 18 \\ \hline 1 \end{array}$$

In examples like those above, the dividend tells *how many cents in all.* The divisor tells *how many cents in each equal group.* The quotient tells *how many equal groups* there are.

2. Write each example above using the word *cents* instead of the dollar sign and cents point. Then divide. Do you see that you divide money numbers in the same way you divide other numbers? *Cents* is the name of something, just as *marbles* or *children* are names.

$$\begin{array}{r} 23 \\ \$.02\overline{)\$.46} \\ 4 \\ \hline 6 \\ 6 \\ \hline \end{array} = 2 \text{ cents} \qquad \begin{array}{r} 23 \\ 46\text{ cents}\overline{)} \\ 4 \\ \hline 6 \\ 6 \\ \hline \end{array}$$

3. Read the answer for example A above. Do you see that it means that \$.46 = 23 groups of \$.02 each?

4. Read the answer for example B. Do you see that it means that \$.87 = 21 groups of \$.04 each and that \$.03 are left?

5. Read the answers for examples C and D. Tell what each means.

Find the answer for each of these examples:

6.	\$.07)\$.77	\$.03)\$.93	\$.02)\$.87	\$.03)\$.68
7.	\$.05)\$.67	\$.02)\$.74	\$.03)\$.76	\$.04)\$.58
8.	\$.06)\$.66	\$.05)\$.75	\$.04)\$.86	\$.03)\$.95

More about Dividing Money Numbers

1. Study the division in each of these four examples:

A
$$\begin{array}{r} \$.43 \\ 2\overline{)\$.86} \\ 8 \\ \hline 6 \\ 6 \\ \hline \end{array}$$

B
$$\begin{array}{r} \$.32\ r2¢ \\ 3\overline{)\$.98} \\ 9 \\ \hline 8 \\ 6 \\ \hline 2 \end{array}$$

C
$$\begin{array}{r} \$.18 \\ 4\overline{)\$.72} \\ 4 \\ \hline 32 \\ 32 \\ \hline \end{array}$$

D
$$\begin{array}{r} \$.19\ r4¢ \\ 5\overline{)\$.99} \\ 5 \\ \hline 49 \\ 45 \\ \hline 4 \end{array}$$

In each example above the dividend tells *how many cents in all.* You see that the divisor is not cents. In each example the divisor tells *how many equal groups* of cents. The quotient tells *how many cents in each equal group.*

2. Read the answer for example A. It shows that when \$.86 is divided into 2 groups, there are \$.43 in each group.

3. Read the answer for example B. It shows that when \$.98 is divided into 3 equal groups there are \$.32 in each group and \$.02 are left.

4. What does the answer for example C show? Example D?

When you work an example of this kind, always be careful to write the dollar sign and cents point in the quotient directly above the dollar sign and cents point in the dividend.

Find the answers for these examples:

5.	$4\overline{)\$.84}$	$2\overline{)\$.68}$	$5\overline{)\$.55}$	$3\overline{)\$.96}$	$4\overline{)\$.88}$
6.	$3\overline{)\$.65}$	$4\overline{)\$.85}$	$2\overline{)\$.47}$	$3\overline{)\$.97}$	$2\overline{)\$.87}$
7.	$7\overline{)\$.84}$	$5\overline{)\$.75}$	$4\overline{)\$.96}$	$6\overline{)\$.78}$	$3\overline{)\$.87}$
8.	$8\overline{)\$.99}$	$3\overline{)\$.58}$	$5\overline{)\$.81}$	$2\overline{)\$.77}$	$6\overline{)\$.92}$
9.	$5\overline{)\$.63}$	$4\overline{)\$.78}$	$6\overline{)\$.90}$	$3\overline{)\$.59}$	$7\overline{)\$.98}$

Making Sure of Division

Find the answer for each example:

1.	$3\overline{)60}$	$2\overline{)80}$	$4\overline{)40}$	$3\overline{)90}$	$\$.09\overline{)\$.90}$	$2\overline{)\$.60}$
2.	$2\overline{)41}$	$3\overline{)92}$	$8\overline{)86}$	$7\overline{)75}$	$\$.04\overline{)\$.43}$	$3\overline{)\$.61}$
3.	$4\overline{)84}$	$2\overline{)68}$	$5\overline{)55}$	$4\overline{)48}$	$\$.03\overline{)\$.93}$	$2\overline{)\$.28}$
4.	$3\overline{)67}$	$6\overline{)68}$	$2\overline{)27}$	$7\overline{)79}$	$\$.04\overline{)\$.86}$	$2\overline{)\$.95}$
5.	$5\overline{)85}$	$4\overline{)64}$	$3\overline{)42}$	$3\overline{)45}$	$\$.05\overline{)\$.90}$	$4\overline{)\$.68}$
6.	$4\overline{)72}$	$3\overline{)54}$	$2\overline{)30}$	$4\overline{)96}$	$\$.04\overline{)\$.76}$	$3\overline{)\$.57}$
7.	$5\overline{)86}$	$4\overline{)50}$	$4\overline{)77}$	$2\overline{)35}$	$\$.03\overline{)\$.55}$	$4\overline{)\$.61}$
8.	$3\overline{)56}$	$5\overline{)98}$	$3\overline{)41}$	$3\overline{)85}$	$\$.05\overline{)\$.99}$	$3\overline{)\$.73}$
9.	$4\overline{)80}$	$2\overline{)81}$	$3\overline{)69}$	$4\overline{)45}$	$\$.05\overline{)\$.95}$	$5\overline{)\$.82}$

Solve these problems:

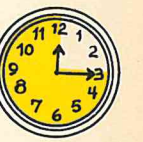
10. Mary earned \$.90 for 2 hours work as a baby sitter. How much an hour was she paid?

11. If 5 girls together bought a 75-cent box of candy for a friend, how much should each girl pay?

12. A bushel of potatoes weighs 60 pounds. How many 5-pound bags can be filled from a bushel of potatoes?

13. John walked 5 blocks in 15 minutes. How long did it take him to walk a block?

14. There are 33 children in a fourth-grade class. Sometimes they separate into groups of 6 for committee work. How many groups, or committees, will there be, and how many committees will have 1 extra member?



15. Edith has \$.75. How many \$.07 ice cream cones can she buy and how much money will she have left?

Find and check the answer for each example below.

Add:

1.

12	421	272	172	5263	$63.51	$23.05
35	234	362	4298	3195	6.44	42.91
87	403	743	290	1334	19.55	18.34

Subtract:

2.

8950	4197	3025	$86.00	$43.02	$70.08
8775	3298	2469	45.75	25.35	43.99

Multiply:

3.

1719	5647	$10.47	$82.34	$14.56	$24.75
4	2	9	3	7	8

Divide:

4. $5\overline{)50}$ $3\overline{)91}$ $5\overline{)53}$ $6\overline{)68}$ $3\overline{)54}$ $6\overline{)96}$ $7\overline{)81}$ $4\overline{)85}$

5. $\$.08\overline{)\$.96}$ $\$.05\overline{)\$.87}$ $2\overline{)\$.86}$ $3\overline{)\$.95}$ $5\overline{)\$.67}$

Solve these problems:

6. Mrs. Brown paid for 5 quarts of milk at 19¢ a quart. How much change should she get from a dollar?

7. John wants to cut a 33-foot piece of rope into 3 equal pieces. How long will each piece be?

8. Tom has $4.95. He would like to buy a pair of roller skates for $3.98 and a new pair of shoes that cost $4.75. How much more money does Tom need?

9. Janet has a roll of crepe paper with 45 feet of paper in the roll. How many pieces of crepe paper 6 feet long can she cut from the roll, and how many feet will be left?

10. Jerry has 36¢. He wants to put $\frac{1}{3}$ of it in his bank. How many cents should he put in his bank?

To Help You Remember

The page numbers after each question, example, or problem show you where to turn if you need help.

▶ *To think and talk about:*

1. After dividing the tens in this example, $3\overline{)54}$, what do you do with the tens left? (182)

2. What does an addition problem tell you and what does it ask you to find? (13)

3. What kinds of questions do subtraction problems ask you? (16, 18)

4. What does a multiplication problem tell you and what does it ask you to find? (47)

5. What does a division problem tell you? What two kinds of questions do division problems ask? (176)

6. When you have a remainder in a division example, what do you do with it? (175)

7. Explain how you would find the perimeter of a rectangle 6 feet wide and 10 feet long. (162)

▶ *To think about and write:*

1. Find the sum of 325 and 4793. (143)

2. Find the quotient and the remainder in $75 \div 4$. (182)

3. Find the product of 4×7435. (158)

4. Find the difference between 6743 and 5987. (144)

5. Write 35, 47, 68, and 94 as Roman numbers. (119, 181)

6. Write XXIV, LIII, XXXIX, and XCIX as Arabic numbers. (119, 181)

7. Find $\frac{1}{8}$ of 64. (164)

8. Find $\frac{3}{5}$ of 30. (163)

9. Find the perimeter of a 6-inch square. (162)

10. Find the answer for \$.79 ÷ \$.05. (183)

Testing Yourself

Find the answer for each example on this page.

Add:

1.

32	21	65	7124	$33.85	$43.54	$14.82
41	39	732	13	19.79	25.16	7.40
20	27	46	684	47.68	19.52	38.26
65	56	957	2168	5.61	26.74	27.45

Subtract:

2.

201	546	4834	5690	4308	$78.24	$59.70
37	279	2752	3627	1949	46.28	37.23

Multiply:

3.

231	334	267	2319	1533	$14.22	$9.31
3	7	3	4	6	6	8

Divide:

4. $3\overline{)91}$ $6\overline{)68}$ $6\overline{)96}$ $\$.05\overline{)\$.87}$ $4\overline{)\$.95}$ $\$.05\overline{)\$.90}$

Solve these problems:

5. Jack has $7.75 in his savings bank. If he takes out enough to buy a football for $3.98 and a football helmet for $2.29, how much money will he have left in the bank?

6. Mary bought a pair of shoes for $6.25 and 3 pairs of socks at $.59 a pair. How much should she pay?

7. Ray's mother bought 3 cans of peaches at 26 cents a can. How much change should she get from $1.00?

8. Fred sold 5 of his rabbits at 75¢ each. Then he bought some wire with the money. The wire cost $1.50. How much of the money did he have left?

9. Joe's uncle has 87 pigs to put into 3 pens with the same number in each pen. How many pigs should he put in each pen?

Chapter 13

Planning a Trip

Mary's family is planning a trip by automobile. Mary is looking at a chart which shows how many persons lived, in 1950, in some of the cities the family might visit on the trip.

The population of Denver is shown by a *six-place* number. This number has places for *ones*, *tens*, *hundreds*, *thousands*, *ten-thousands*, and *hundred-thousands*. There are 6 ones, 8 tens, 7 hundreds, 5 thousands, 1 ten-thousand, and 4 hundred-thousands in the number.

The number 415,786 is read: *Four hundred fifteen thousand, seven hundred eighty-six*. Notice that the thousands, ten-thousands, and hundred-thousands are read as thousands. A comma is placed between the thousands and the hundreds. This makes the number easier to read.

1. Read the numbers in the picture that tell the population of each city. How many fewer persons lived in Carson City than in Sheridan?

2. Draw a chart like this. On your chart write the figures for the population of each city above, as has been done for Denver.

City	Hund. Thous.	Ten Thous.	Thous.	Hunds.	Tens	Ones
Denver	4	1	5	7	8	6

Using Larger Numbers

1. While driving with his father, Tom read the signs in the cities they passed through. He noticed that 21,869 persons lived in one city and 7342 in another. How many persons lived in the two cities?

Study example A. To work it, add ones, tens, hundreds, and thousands. Then bring down the *ten-thousands*. What is the sum?

2. How many more persons lived in the larger city than in the smaller one?

Study example B. To work it, subtract ones, tens, and hundreds. Change 1 *ten-thousand* to 10 *thousands* before you subtract thousands. Bring down the 1 *ten-thousand* that is left.

3. Add 34,010 and 29,590.

Study example C. *Ten-thousands* are added in the same way you add ones, tens, hundreds, or thousands. What is the sum?

4. Subtract 29,590 from 34,010.

Study the subtraction in D. Tell how it was done.

A	21869 +7342 29211
B	21869 −7342 14527
C	34010 +29590 63600
D	34010 −29590 4420

Find the answer for each example. Watch the signs.

5.	14835 +2940	$325.96 +83.71	46728 +1596	$214.79 +85.21	27652 +9871
6.	32619 +18534	$450.25 +209.75	14036 +13069	$573.90 −348.57	20793 −17621
7.	29653 −1217	$183.49 −26.73	34765 −12786	$684.00 −625.34	64047 −38659

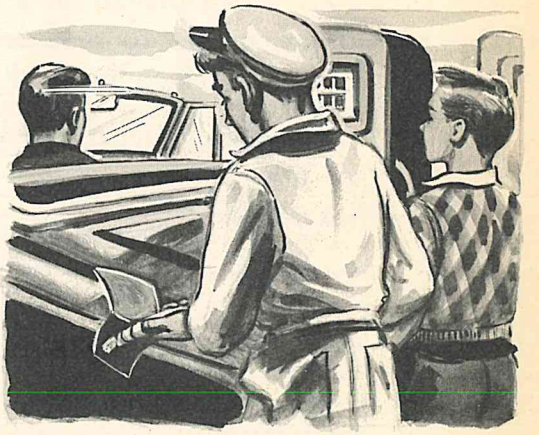
Now you have learned:

- You add or subtract *ten-thousands* in the same way you add or subtract *ones*, *tens*, *hundreds*, or *thousands*.

A Visit to the Filling Station

One Saturday morning Jack stopped at Mr. Carlsen's filling station and watched Mr. Carlsen work.

Some of the problems below tell about things Mr. Carlsen did. Solve the problems.



1. A man drove in and bought 8 gallons of gasoline at $.29 a gallon and a quart of oil for $.41. How much should he pay?

2. Mr. Carlsen sold 2 inner tubes to a man at $4.25 each. How much change should the man get from $10.00?

3. Mr. Carlsen told Jack that the big underground tank held 1525 gallons of gasoline. A smaller tank held 750 gallons. How many more gallons would the larger tank hold than the smaller one?

4. In July the station sold 6245 gallons of gasoline, in August, 9650 gallons, and in September, 5890 gallons. How many gallons of gasoline did the station sell in the three months?

5. Mr. Jackson bought a tire for $17.75, some gasoline for $2.50, some oil for $.82, and had his car washed for $1.75. How much was Mr. Jackson's bill?

6. After driving his new car 9872 miles, Mr. Thomas took a 358-mile trip. How far had his car been driven at the end of this trip?

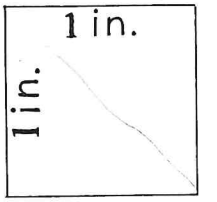
7. At the beginning of a trip the speedometer on Mrs. White's car read 68590. At the end of the trip it read 69575. How far did Mrs. White drive on the trip?

8. Mrs. White paid 96¢ for 3 quarts of oil for her car. What was the price per quart?

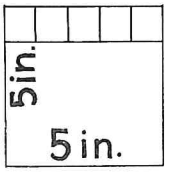
Measuring a Flat Surface

1. Ann needed a piece of cork 5 inches square for a tray that she was making. She knew that cork was sold by the square inch. How many square inches of cork did she need?

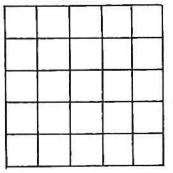
Here is a picture of a square inch. We use square inches to measure surfaces. The size of a flat surface is called its *area*.



The small pictures below will help you to see how to use a *square inch* in measuring a flat surface.



Draw a 5-inch square. Start at the upper left-hand corner and see how many square inches are needed to make a row along the top edge. How many square inches are needed to make this row?



Now draw enough rows of square inches to cover the whole surface. Then there will be 5 rows of square inches with 5 square inches in each row. 5 × 5 square inches = 25 square inches.

2. If Ann had wanted a piece of cork 5 inches long and 4 inches wide she would have counted the number of square inches in 4 rows instead of 5. She would have needed 20 square inches. 4 × 5 square inches = 20 square inches.

3. Find the area of a rectangle 5 feet long and 3 feet wide.

5 (square feet in a row)
×3 (number of rows)
15 (square feet)

4. Find the area of a 4-foot square. Of a rectangle 8 inches long and 6 inches wide.

Now you have learned:

To find the *area* of a *rectangle* or a *square*, *multiply* its *length by* its *width*.

Understanding Fractional Parts

The chart below shows you that 1 gallon = 4 quarts. It also shows that $\frac{1}{4}$ of a gallon = 1 quart.

1 gallon	=	1 quart or $\frac{1}{4}$ gallon 1 quart or $\frac{1}{4}$ gallon 1 quart or $\frac{1}{4}$ gallon 1 quart or $\frac{1}{4}$ gallon

Answer these questions about fractional parts:

1. If you bought $\frac{3}{4}$ of a gallon of milk, how many quarts of milk would you have?

2. Ralph bought $\frac{1}{2}$ of a gallon of milk. How many quarts does this equal? ($\frac{1}{2}$ of a gallon = $\frac{1}{2}$ of 4 quarts = ? quarts)

3. 1 foot = how many inches? $\frac{1}{4}$ of a foot = how many inches? ($\frac{1}{4}$ of 1 foot = $\frac{1}{4}$ of 12 inches or ? inches) $\frac{1}{3}$ of a foot = how many inches? $\frac{2}{3}$ of a foot = how many inches?

4. 1 hour = how many minutes? $\frac{1}{2}$ of an hour = how many minutes? ($\frac{1}{2}$ of 1 hour = $\frac{1}{2}$ of 60 minutes or ? minutes) $\frac{1}{5}$ of an hour = how many minutes? $\frac{1}{6}$ of an hour = how many minutes?

5. 1 day = how many hours? $\frac{1}{2}$ of a day = how many hours? $\frac{2}{3}$ of a day = how many hours? $\frac{3}{4}$ of a day = how many hours?

6. 1 bushel = how many pecks? $\frac{1}{2}$ of a bushel = how many pecks? $\frac{3}{4}$ of a bushel = how many pecks?

7. Judy and Mary played jump rope for $\frac{1}{4}$ of an hour. How many minutes did they play?

8. Shirley bought $\frac{1}{2}$ of a pound of butter. How many ounces of butter was that?

9. David's mother bought $\frac{1}{4}$ of a bushel of apples at the store. How many pecks of apples did she buy?

10. Ann measured her notebook and found that it was $\frac{3}{4}$ of a foot long. How many inches long was it?

Problems without Numbers

There are no numbers in the problems on this page. After you read each problem, decide whether you would have to add, subtract, multiply, or divide to answer the question in the problem. Then write A, S, M, or D in answer to the question.

1. Three boys plan to share the cost of a trip. How would you find how much each boy should pay?

2. You know the cost of a quart of milk and you know how many quarts of milk your family uses each day. How would you find how much is spent for milk each day?

3. You know how many days it is until Christmas. How would you find how many weeks it is until Christmas?

4. You know the price of a pound of butter. How would you find the cost of $\frac{1}{4}$ of a pound of butter?

5. You know how much money you have saved and how much a new sweater costs. How would you find how much money you still need to buy the sweater?

6. You know the price of a quart of oil. How would you find the price of a gallon?

7. You know how many quarts of berries you picked on Monday and how many you picked on Tuesday. How would you find out how many quarts you picked on both days?

8. You know your own age and your father's age. How would you find the difference between your ages?

9. You know how much money you had before you bought some school supplies and how much money you have now. How would you find out how much you had spent?

10. You know the width and the length of a rectangular piece of paper. How would you find its area?

11. How would you find the perimeter of a rectangle?

Solving Problems

Read each problem. Decide whether to add, subtract, multiply, or divide, and write A, S, M, or D. If the problem has two steps, write A, S, M, or D for each step. Then solve the problem.

1. The desks in a fourth-grade room cost $6.75 each. What is the cost of 8 desks?

2 Jack had 35 yards of string in one ball, and 50 yards in another ball. How many more yards of string does he need if he wants a kite string 100 yards long?

3. Henry bought a piece of cork 4 inches long and 3 inches wide. How much did it cost at 6¢ per square inch?

4. If 60 children are standing in 4 equal rows, how many children are in each row?

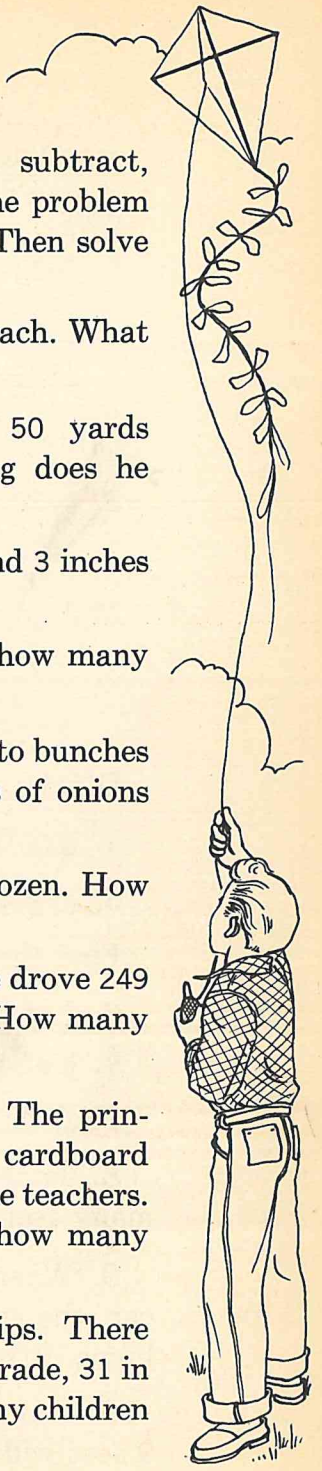
5. Henry pulled 72 green onions and tied them into bunches with 6 onions in each bunch. How many bunches of onions did he have?

6. Dick's mother bought 5 dozen eggs at $.79 a dozen. How much change should she get from $4.00?

7. Jane's father started on a trip of 865 miles. He drove 249 miles the first day and 298 miles the second day. How many miles farther did he have to drive?

8. One day Robert helped in the school office. The principal gave him a package of 44 sheets of heavy cardboard and told Robert to distribute them equally to 3 of the teachers. How many sheets did he give each teacher, and how many sheets did he have left over?

9. Robert went to 4 rooms for attendance slips. There were 32 present in the first grade, 35 in the second grade, 31 in the third grade, and 33 in the fourth grade. How many children were present in all four grades?



Mixed Practice

Find the answer for each example below.

Add:

1.	7638	489	27091	\$140.53	\$65.92	51236
	597	3976	492	174.07	7.65	2318
	8321	143	5030	2.00	64.84	5342
	1362	6281	233	31.32	37.29	2149

Subtract:

2.	4732	3632	18458	\$273.29	\$91.82	\$560.85
	2196	1765	6287	152.87	35.67	153.76

Multiply:

3.	2374	3263	36148	\$24.43	\$85.96	\$78.24
	7	4	5	3	8	5

Divide:

4. $\$.06\overline{)\$.90}$ $\$.05\overline{)\$.85}$ $\$.08\overline{)\$.98}$ $\$.04\overline{)\$.52}$ $\$.05\overline{)\$.76}$

5. $5\overline{)\$.60}$ $7\overline{)\$.84}$ $3\overline{)\$.47}$ $2\overline{)\$.39}$ $3\overline{)\$.44}$ $8\overline{)\$.98}$

Find the answers:

6. $\frac{3}{4}$ of 16 = ? $\frac{1}{3}$ of 15 = ? $\frac{2}{5}$ of 10 = ? $\frac{3}{5}$ of 10 = ?

7. $\frac{5}{8}$ of 48 = ? $\frac{1}{6}$ of 30 = ? $\frac{3}{5}$ of 25 = ? $\frac{7}{8}$ of 24 = ?

Find the answer for each problem below.

8. James has a garden 20 feet long and 9 feet wide. How many feet of fence are needed to build a fence around it?

9. When James and his father started on a trip in the car, the speedometer read 4267 miles. When they got back home, it read 4312 miles. How far did they travel?

10. How many square feet are there in a rug 12 feet long and 9 feet wide?

Solving Two-Step Problems

Read each problem carefully. Decide what steps to take to answer the question. For each step, write A if you should add, S if you should subtract, or M if you should multiply. Then solve the problem.

1. Dick had 13 baby chicks in one coop and 17 in another. He sold 19 of the chicks. How many did he still have?

2. Mary went to the store with a quarter. She bought 3 bars of soap at 7¢ a bar. How much money did she have left?

3. Jane bought 3 cans of tomato juice at 27¢ a can. How much change did she get from $1.00?

4. Dora had $5.00 in her savings bank. She took out enough money to buy 5 savings stamps at $.25 each. How much money did she have left in her bank?

5. Susan's mother paid $.96 for meat and $.38 for vegetables. How much change should she get from $1.50?

6. Betty had $2.35 in her purse. How much more money does she need to buy 3 yards of cloth at $.98 a yard?

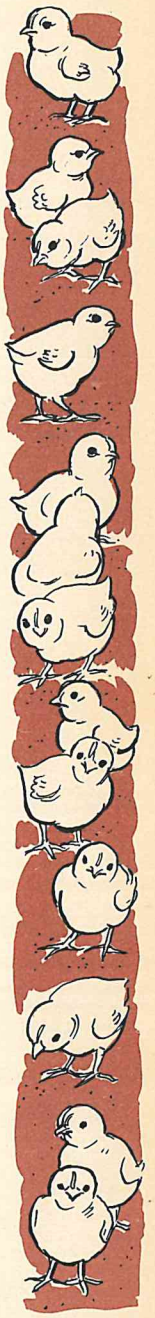
7. Each day John's father buys a newspaper for 5¢ and pays 36¢ for carfare. How much does he spend for these things in 5 days?

8. Mrs. Barber bought 2 dozen oranges at $.59 a dozen and a bag of grapefruit for $.49. How much did she spend?

9. Bob's father bought 5 quarts of oil at $.35 a quart. How much change should he get from $2.00?

10. Five boys went on an outing together. Each boy gave the leader $1.00 to pay expenses. The total expense of the trip was $3.85. How much money was left?

11. Joan went to the drugstore for her mother. She bought three bars of soap for 6¢ each, a toothbrush for 52¢, and tooth powder for 35¢. How much should she pay in all?



Problems about a Baseball Team

Walter's father is the manager of a baseball team. The problems below are about things Walter saw or heard on a trip with the team. Read each problem and decide how to solve it. Then find the answers. Remember:

If you need to:	*Then do this:*
> Find how many in all	Add
> Find the difference	Subtract
> Find how many in all of the equal groups	Multiply
> Find how many equal groups > Find how many in each equal group	Divide

1. The largest crowd at a home game was 4658 persons. The smallest crowd was 526 persons. How many more persons were in the largest crowd than in the smallest?

2. Walter saw one man buy a ticket for himself at $1.00 and 6 children's tickets at 44¢ each. How much money did the man spend for tickets?

3. In a small city there were 1823 tickets sold for a Friday game and 2378 tickets sold for a Saturday game. How many tickets were sold altogether for both games?

4. The team played in one city where there were 1097 persons at a game. If 125 of them had free passes, how many persons paid to see the game?

5. One week when the team played at home, 1768 tickets were sold for the Friday game, 1986 tickets for the Saturday afternoon game, and 2895 tickets for the Sunday doubleheader. How many tickets were sold for those three days?

6. During the season, the team traveled 8655 miles by bus and 460 miles by train. How many more miles did the team travel by bus than by train?

A Visit to a Feed Store

John and David visited a feed store with their father. Here are some problems about things that the boys learned on their visit. Find the answer for each problem.

1. A sack of feed weighs 98 pounds. How much will 4 sacks of feed weigh?

2. The owner of the store told the boys that he had bought 2130 bushels of corn and had sold 375 bushels of it to a farmer. How many bushels of the corn did the owner have left?

3. The owner said that one of the bins held 1050 bushels of oats when it was full and that a smaller bin held 575 bushels. How many more bushels of oats would the larger bin hold than the smaller bin?

4. A farmer bought 6 bags of chicken feed at $5.98 a bag. How much did the chicken feed cost?

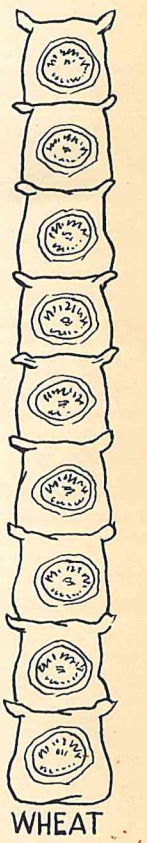
5. Another farmer wanted 75 bushels of oats. The boys helped the owner put the oats into bags that held 2 bushels each. How many full bags were there and how many bushels were left for the last bag?

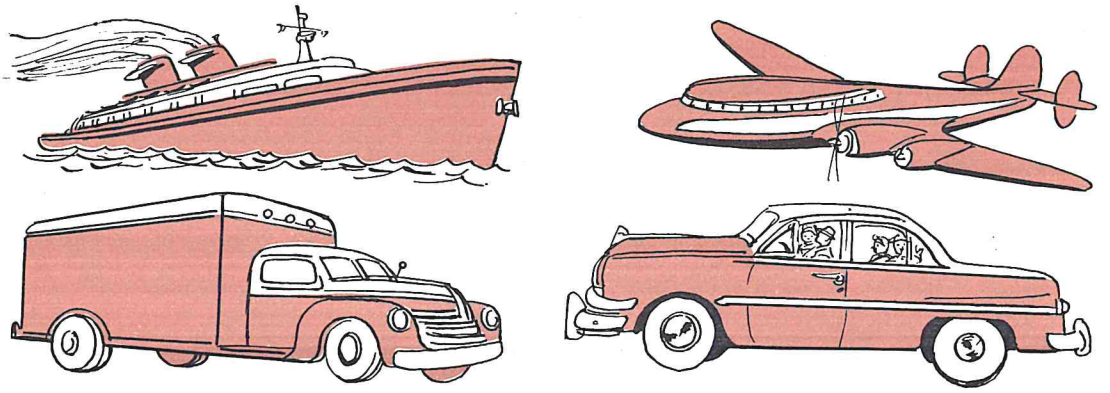
6. Mr. Brown paid $19.39 for some bags of oats. He also bought a load of feed that cost $42.05. How much did he pay altogether?

7. The boys saw a truck loaded with wheat being weighed. It weighed 19,905 pounds. After it was unloaded, the empty truck weighed 5845 pounds. What was the weight of the wheat?

8. John saw a stack of bags of feed. The bags were stacked in rows of 9 bags each. There were 5 rows. How many bags of feed were there in the stack?

9. Mr. Johnson owed a bill of $60.05. The feed-store owner subtracted $2.78 because of empty bags which Mr. Johnson returned. How much did Mr. Johnson still owe?





Problems about Transportation

1. Joan read that airplanes carry freight 2450 miles in a twelve-hour day, while a truck carries it 375 miles in the same time. How many more miles does the airplane carry freight in a day than does the truck?

2. A truck carried freight weighing 9030 pounds and an airplane carried 805 pounds. How many fewer pounds of freight did the airplane carry than did the truck?

3. A truck made a 270-mile trip from Chicago to Detroit. From there it went to Toledo which is 55 miles from Detroit. Then it went 113 miles to Cleveland and 191 miles to Buffalo. How far did it travel on the whole trip?

4. Mary read about a ship that carried 2864 persons on a trip to South America. There were 745 persons in the ship's crew, and the others were passengers. How many passengers were on the ship?

5. John read about a ship that traveled 375 miles in a day. At this rate, how far could the ship travel in 4 days?

6. A man made a canoe trip of 39 miles in 3 hours. What was his rate of speed in miles an hour?

7. Patsy read that the automobile trip between two cities is 1600 miles, and that the airplane trip is 1025 miles. What is the difference in mileage?

8. How many miles are 2235 miles and 831 miles?

Sensible Answers in Multiplication

When you solve a problem you should be able to tell whether or not your answer is a reasonable one. So, you should have some idea of how big the answer should be. Read problem 1. Can you decide what a sensible answer would be?

1. David has 26 stamps on each of 7 pages in his stamp book. How many stamps are in his book?

What does the problem tell? What question does it ask?

You multiply to find how many in all the equal groups.

26 (stamps on each page = multiplicand)
7 (number of pages = multiplier)
? (stamps on all the pages = product)

You know that the answer will be larger than 140 because 7 × 2 tens = 14 tens or 140. You also know that the answer will be less than 210 because 7 × 3 tens = 21 tens or 210.

When you work the example, you will find that the answer is 182 as shown in the example above.

$$\begin{array}{r} 20 \\ \times 7 \\ \hline 140 \end{array} \qquad \begin{array}{r} 30 \\ \times 7 \\ \hline 210 \end{array}$$

$$\begin{array}{r} 26 \\ \times 7 \\ \hline 182 \end{array}$$

For each problem below estimate the smallest number and the largest number that the answer could be. Then solve the problem. Was the exact answer between your smallest and your largest estimate?

2. The fourth-grade children are making bags for a beanbag game. They put 36 beans into each beanbag. How many beans did they use for 6 bags?

3. Mr. Brown buys books for the Anderson School. He bought 8 new books at $1.95 each for the fourth grade. How much did the books cost?

4. How many quarts of milk are there in a tank that contains 29 gallons? (1 gallon = 4 quarts)

Review and Practice

You should be able to get the right answers for the examples on this page. Take time to check each answer.

Add:

1.

4554	9227	30470	$146.13	$29.75	$42.20
7148	195	5860	415.43	34.76	9.89
952	2065	176	23.10	57.68	.63
3867	7423	3023	5.30	68.51	84.62

Subtract:

2.

9653	9385	9783	$543.95	$53.87	$20.06
5492	7621	4865	217.28	32.88	19.97

Multiply:

3.

7051	5932	4102	$60.53	$38.20	$43.96
7	3	6	9	8	5

Divide:

4. $7\overline{)77}$ $5\overline{)85}$ $3\overline{)56}$ $\$.07\overline{)\$.84}$ $\$.05\overline{)\$.78}$ $4\overline{)\$.56}$ $3\overline{)\$.52}$

Answer these questions:

5. $\frac{1}{3}$ of 12 = ? $\frac{1}{6}$ of 36 = ? $\frac{3}{8}$ of 72 = ? $\frac{5}{8}$ of 72 = ?

Solve these problems:

6. A farmer threshed 860 bushels of oats, 75 bushels of barley, and 40 bushels of wheat. How many bushels of grain did he thresh?

7. There were 93 fourth-grade children in a school. If they were divided evenly among 3 rooms, how many children were there in each room?

8. Julia's mother bought 3 square yards of linoleum that cost $1.65 a square yard. How much change should she receive from $10?

To Help You Remember

The page numbers after the questions or directions tell you where to turn for help if you need it.

▶ *To think and talk about:*

1. Read aloud these numbers. 63,520 2458 138,010 261 $2.61 $475.05 (7, 9, 143, 189)

2. Tell the class how you know that the product of 8 × 3465 will be a five-place number. (158)

3. Explain how you would find the area of a square or a rectangle when you know its length and its width. (192) How would you find its perimeter? (162)

4. Where do you write the remainder in an uneven division example? (174) Explain this to the class by working on the board an example which you make up.

▶ *To think about and write:*

1. Copy each of these large numbers and write a comma in it to make reading easier. (189)

700721 42612 140083 287561 66383

2. Find the area of a rectangle that is 14 in. long and 9 in. wide. (192) Find its perimeter. (162)

3. Find the product of 6 × 4278. (158)

4. Find the quotient and the remainder for 78 ÷ 4. (182)

5. Write the smallest number and the largest number that you think the answer to the problem below could be. Then solve the problem and see whether the exact answer was between your lowest and your highest estimate. (134)

6. Janet's mother spent $3.68 for steak, $2.15 for canned goods, and $.89 for vegetables. How much did she spend in all? (70)

Testing Yourself

Find the answer for each of these examples:

Add:

1.	9076	1756	23201	$12.76	$24.40	$ 7.29
	89	2638	7000	21.89	28.61	3.65
	167	1496	876	31.45	7.73	2.11
	5459	3762	39059	12.65	30.05	91.75

Multiply:

2.	1836	7659	8104	$76.11	$27.60	$14.61
	3	4	8	7	5	6

Subtract:

3.	4362	7352	35163	$43.00	$96.85	$172.08
	2836	5768	13776	27.93	65.38	32.69

Divide:

4. $6\overline{)80}$ $4\overline{)55}$ $8\overline{)90}$ $.02\overline{)\$.37}$ $.04\overline{)\$.64}$ $6\overline{)\$.78}$ $8\overline{)\$.97}$

Answer these questions:

5. $\frac{1}{2}$ of 26 = ? $\frac{2}{5}$ of 35 = ? $\frac{3}{4}$ of 16 = ? $\frac{5}{6}$ of 18 = ?

Solve these problems:

6. If an airplane travels 175 miles an hour, how far will it travel in 3 hours?

7. The population of a small town was 3538 in 1940 and 325 less in 1950. What was the population in 1950?

8. The Girl Scouts made 54 cookies to sell. They put 5 cookies in each bag. How many bags of cookies did they have to sell and how many cookies were left?

9. Ann had $.50. She spent $.11 for a movie ticket and $.15 for an ice cream soda. How much money had she left?

10. Find the sum of 62,743 and 15,689.

Chapter 14

Buying Savings Stamps

The School Council at Jefferson School had a plan for helping the children save. Each week a committee received the money from the children and bought savings stamps and bonds for them at the post office. Solve these problems about buying savings stamps and bonds.

1. One week Jim received the money brought by the first- and second-grade children. The first graders brought \$11.50 and the second graders brought \$12.25. How much money did Jim receive that week from the children in those two grades?

2. Alice bought a savings bond for \$18.75. In ten years it will be worth \$25.00. How much money will Alice gain?

3. Nancy received money for 9 twenty-five cent savings stamps. How much money did she receive?

4. When all the money the children brought was counted, the committee found that it had \$2.75 in pennies, \$4.80 in nickels, \$6.20 in dimes, \$12.25 in quarters and halves, and \$14.00 in bills. What was the total amount the children brought that week to buy savings stamps and bonds?

Solving Problems about Money

Read each problem carefully. Decide how to solve the problem and write A, S, M, or D for each step. Then find the answer to the problem question.

1. Ellen is sewing an apron for her mother. She bought a piece of cloth for 69¢ and gave the clerk 3 quarters. How much change should Ellen get?

2. How much should you pay for 3 pounds of butter at 89¢ a pound and a peck of potatoes at 78¢ a peck?

3. Helen had $.75. Then she earned $.35 a day for 6 days for doing the dishes in the evening. How much money did she have altogether?

4. Ruth bought meat for 98¢ and a pound of butter for 83¢. How much change should she get from $5?

5. Bob's father can buy apple trees for $1.25 each. He needs enough trees to make 3 rows with 3 trees in each row. How much must he pay for all of the trees?

6. Sally's uncle said that he would give her as much money as she had in dimes and nickels. Sally had 60¢ in dimes and 25¢ in nickels. How much money did she have after her uncle gave her the money he had promised?

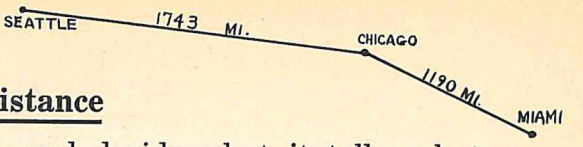
7. John spent 15¢ for marbles and 25¢ for a game. How much change should he receive from 50¢ ?

8. Jane bought a bag of sugar for 98¢ and 2 dozen oranges at 69¢ a dozen. How much should she pay?

9. Sue earned 50¢ a week and her allowance was 25¢. If she saved it all, how much would she save in 4 weeks?

10. Bill bought 6 savings stamps at 25¢ each. How much change should he receive from $2.00?

11. John can get a $59.00 bicycle at a sale for only $38.98. How much can he save if he gets the bicycle at the sale?



Solving Problems about Distance

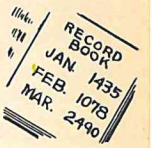
Read each problem below and decide what it tells, what question it asks, and what you must do to find the answer. Then find the answer.

1. Ray found that it was 1743 miles by plane from Seattle to Chicago and 1190 miles from Chicago to Miami. How far is it from Seattle to Miami by way of Chicago?

2. Tom and his father drove 412 miles on Monday, 397 miles on Tuesday, and 378 miles on Wednesday. How far did they drive in those three days?

3. Ann and her mother started on a 1500-mile airplane trip. They made a stop after going 355 miles. How many miles did they still have to go?

4. John's father changed the oil in his new car after he had driven it 978 miles. He changed the oil again when the speedometer read 2008. How far did he drive between the first and second changes of oil?



5. Joe's father drove his car 1435 miles in January, 1078 miles in February, and 2490 miles in March. How far did he drive in these three months?

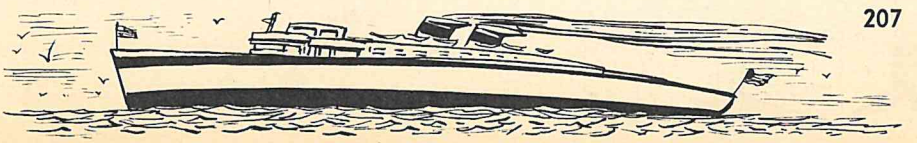
6. Tom's father started on a trip of 875 miles. He drove 389 miles the first day and 369 miles the second day. How many miles did he still have to drive?

7. Use a road map and find how far you would have to drive from your home to the capital of your state.

8. Ed learned that there are 5280 feet in 1 mile. How many feet are there in 7 miles?

9. There are 1760 yards in a mile. How many yards are there in 5 miles?

10. A passenger ship can travel 28 miles an hour. How far can it travel in 9 hours?



Solving Problems about Measurement

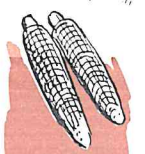
Read each problem carefully. Decide what to do to answer the question. Then solve the problem.

1. A farmer bought 6000 pounds of fertilizer. He used all of it except 785 pounds which he sold to a neighbor. How many pounds did he use?

2. The man at the filling station said that he sold 4812 gallons of gasoline in January and 4344 gallons in February. How many gallons did he sell in the two months?

3. A farmer sold 3 cows. The first cow weighed 1325 pounds, the second 1246 pounds, and the third 1028 pounds. What was the total weight of the three cows?

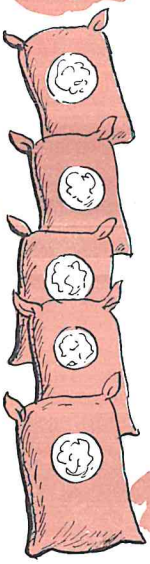
4. A farmer raised 3250 bushels of corn. In the fall he sold 975 bushels. How many bushels did he have left?



5. Ray has a garden in the vacant lot next door. It is 26 feet wide and 32 feet long. What is the perimeter of his garden?

6. A farmer sold a load of cabbage that weighed 7755 pounds and another load that weighed 6998 pounds. How many pounds of cabbage were in both loads?

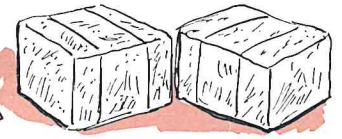
7. Water freezes at 32 degrees and boils at 212 degrees. What is the difference in degrees between the freezing point and the boiling point of water?

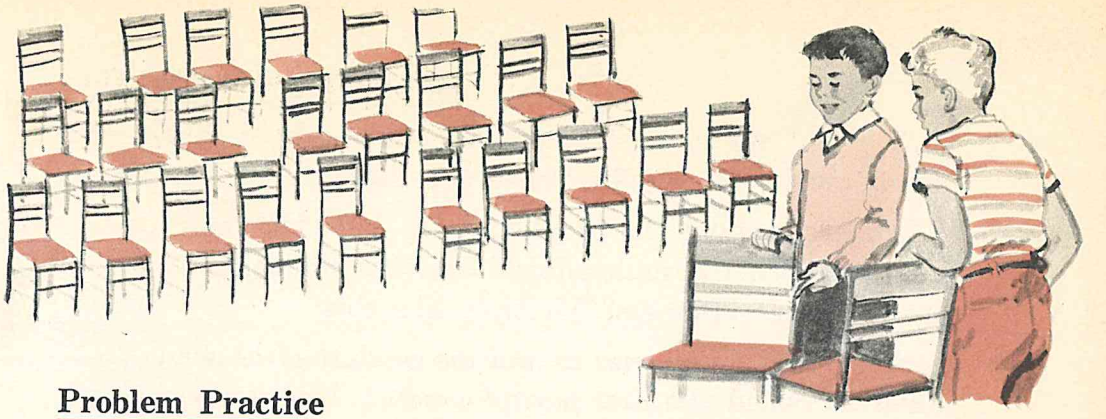


8. A truck loaded with hay weighed 9378 pounds. When the truck was empty it weighed 6850 pounds. What was the weight of the hay?

9. Mr. Johnson said that he sold 3540 bushels of wheat last year and 2995 bushels this year. How many fewer bushels did he sell this year than last year?

10. A baseball diamond is a square 90 feet on a side. How far does a batter run when he hits a home run?





Problem Practice

Read each problem. Think what it tells you and what answer it asks you to find. Decide what to do to find the answer. Then solve the problem.

1. The boys in the picture had 42 chairs to place in 4 equal rows. How many chairs did they put in each row and how many were left?

2. Jack's mother packed cartons of eggs in boxes that held 6 cartons each. She had 56 cartons of eggs. How many boxes did she use, and how many cartons were left?

3. Last summer 75 boys went to camp. There were places for 30 boys to sleep in the lodge, and for 24 in cabins. The rest slept in tents. How many boys slept in tents?

4. A traffic count showed that 2869 cars used Main Street on Saturday and 4583 cars used it on Sunday. How many more cars used the street on Sunday than on Saturday?

5. The population of Pleasant Valley was 5006 in 1950. The census records showed that it had been 3987 in 1940. How much did the city grow in 10 years?

6. William saved 65¢ each week for 2 weeks. How much more did he need to buy a ball that cost $1.50?

7. Mary went to the store for her mother. She bought a 3-pound pot roast at 56¢ a pound and a pound of bacon for 68¢. How much did she spend for both?

Multiplying Tens by Tens

1. There are 10 classrooms in the new school. Each room has 30 seats. How many seats are there in all the rooms?

The example for the problem is 10×30. Do you see that both the multiplicand and the multiplier are two-place numbers? Multiply like this:

$$\begin{array}{r} 30 \\ \times 10 \\ \hline 00 \end{array}$$

First *multiply by ones to find the product of ones*, which is called the *first partial product*. There are no ones in the multiplier, so write 0 in both ones' and tens' places.

$$\begin{array}{r} 30 \\ \times 10 \\ \hline 00 \\ 30 \\ \hline \end{array}$$

Next *multiply by tens to find the product of tens*, which is called the *second partial product*. There are no ones in the multiplicand, so write 0 in tens' place in the product of tens. 1 ten $\times$ 3 tens = 3 hundreds (because 10×3 tens = 30 tens or 3 hundreds). Write 3 in hundreds' place in the product of tens.

$$\begin{array}{r} 30 \\ \times 10 \\ \hline 00 \\ 30 \\ \hline 300 \end{array}$$

Then *add the partial products to find the total product*. Write 0 in ones' place and 0 in tens' place. Bring down 3 hundreds. The *total product* is 3 hundreds, 0 tens and 0 ones. There will be 300 seats in all the rooms.

2. Do you see that when there are *no ones in the multiplicand or the multiplier*, there are *no ones* and *no tens* in *the total product?* Can you tell why?

3. Here is a *short way* to find the answer: Write zeros in ones' and tens' places. Then multiply tens $\times$ tens.

$$\begin{array}{r} 30 \\ \times 10 \\ \hline 300 \end{array} \qquad \begin{array}{r} 30 \\ \times 20 \\ \hline 600 \end{array}$$

Copy these examples, and multiply:

4.

70	90	80	60	50	20	20	10	30	40
10	10	10	10	10	30	40	90	30	20

5.

10	40	20	10	10	10	30	10	10	30
30	10	20	40	60	80	20	10	20	10

Multiplying Ones and Tens by Tens

1. A bushel of oats weighs 32 pounds. How much would a load of 20 bushels weigh?

The example to write for the problem is 20 × 32. You see that in this example there are ones in the multiplicand. Multiply like this:

$$\begin{array}{r} 32 \\ \times 20 \\ \hline \end{array}$$

First *multiply by ones to find the first partial product.* There are no ones in the multiplier, so write 0 in both the ones' and tens' places.

$$\begin{array}{r} 32 \\ \times 20 \\ \hline 00 \end{array}$$

Next *multiply by tens to find the second partial product.* 2 tens × 2 ones = 4 tens (because 20 × 2 ones = 40 ones or 4 tens). Write 4 in tens' place. 2 tens × 3 tens = 6 hundreds (20 × 3 tens = 60 tens or 6 hundreds). Write 6 in hundreds' place.

$$\begin{array}{r} 32 \\ \times 20 \\ \hline 00 \\ 64 \\ \hline \end{array}$$

Then *add the partial products to find the total product.* Write 0 in ones' place. Bring down 4 tens. Bring down 6 hundreds. What is the *total product?* What is the answer to the question in the problem?

$$\begin{array}{r} 32 \\ \times 20 \\ \hline 00 \\ 64 \\ \hline 640 \end{array}$$

2. When there are no ones in the multiplier, there will be no ones in the total product. Can you tell why? The *short way* to work examples of this kind is to write 0 in ones' place and then multiply tens × ones and tens × tens, like this ⟶

$$\begin{array}{r} 32 \\ \times 20 \\ \hline 640 \end{array}$$

Find each product below. First multiply the long way, then the short way. Are the two answers the same?

3.	11	21	33	11	12	22	42	31	32	23
	60	40	30	90	30	40	20	20	20	30
4.	14	11	13	32	11	43	31	23	12	24
	20	50	10	30	70	20	10	20	40	20
5.	44	22	13	34	45	21	22	12	23	33
	10	30	20	10	10	30	20	20	10	20

Multiplying Tens by Ones and Tens

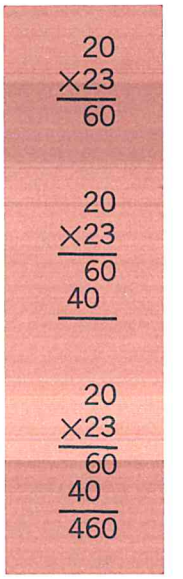
1. Douglas goes to school and comes home on the school bus. Each day he rides 20 miles. Last month he went to school 23 days. How far did he ride on the school bus last month?

The example to write for the problem is 23×20. You can see that there are no ones in the multiplicand. Multiply this way:

Multiply by ones to find the first partial product. There are no ones to multiply, so write 0 in ones' place. 3×2 tens $= 6$ tens. Write 6 in tens' place.

Multiply by tens to find the second partial product. There are no ones to multiply, so write 0 in tens' place. 2 tens $\times$ 2 tens $= 4$ hundreds (because 20×2 tens $= 40$ tens or 4 hundreds). Write 4 in hundreds' place.

Add the partial products to find the total product. Bring down 0 in ones' place. Bring down 6 tens. Bring down 4 hundreds. The product is 4 hundreds, 6 tens, and 0 ones, or 460. What is the answer for the problem?



Copy each example below, multiply and check.

2.	10	20	10	10	30	20	10	10	20	30
	26	44	82	39	33	32	25	35	22	21
3.	50	10	10	20	20	30	40	20	30	20
	11	99	38	33	34	11	12	14	13	43
4.	10	40	10	30	10	20	30	10	40	30
	17	22	56	32	15	31	23	72	11	31
5.	20	30	60	40	20	10	30	10	90	80
	42	12	11	21	13	71	22	55	11	11
6.	10	43	20	20	34	14	10	20	41	11
	50	10	21	10	20	10	70	12	10	40

Multiplying by Ones and by Tens

1. June's mother has a collection of old buttons. She has 12 cards with 24 buttons sewed on each card. How many buttons does she have in all?

Multiply by ones to find the first partial product. 2 ones × 4 ones = 8 ones. Write 8 in ones' place. 2 ones × 2 tens = 4 tens. Write 4 tens.

Multiply by tens to find the second partial product. 1 ten × 4 ones = 4 tens. Write 4 in tens' place. 1 ten × 2 tens = 2 hundreds. (10 × 2 tens = 20 tens = 2 hundreds) Write 2 in hundreds' place.

Add the partial products to find the total product. Bring down 8 ones. 4 tens + 4 tens = 8 tens. Write 8 in tens' place. Bring down 2 hundreds. How many old buttons does June's mother have in all?

```
  24        24        24
 ×12       ×12       ×12
 ---       ---       ---
  48        48        48
            24        24
                      ---
                      288
```

Copy each row of examples below and multiply.

2.

18	12	11	81	11	26	12	53	21	12
11	41	34	11	17	11	12	11	12	13

In the next row you will have to change tens to hundreds when you add the partial products.

3.

28	24	12	22	11	22	21	11	32	11
11	21	34	41	49	24	43	58	22	38

In the next row you will have to change tens to hundreds and hundreds to thousands when you add the partial products.

4.

93	33	11	97	98	32	11	11	11	96
11	33	92	11	11	33	97	91	95	11

Now you have learned:

When you multiply by a 2-place multiplier, first *multiply by* the *ones* in the multiplier. Next *multiply by* the *tens*. Then *add* the *partial products*.

Making Sure of Multiplication

Copy each row of examples below, multiply and check.

Part I

1.	32 × 3	23 × 3	61 × 5	48 × 2	53 × 7	79 × 8	234 × 2	512 × 4	623 × 3
2.	473 × 2	153 × 3	940 × 5	325 × 3	714 × 6	243 × 4	532 × 9	743 × 6	
3.	2123 × 2	8320 × 3	2401 × 4	6513 × 3	4283 × 2	4732 × 5	2253 × 7		
4.	7031 × 6	1640 × 5	5341 × 7	6053 × 6	2309 × 3	6218 × 4	8314 × 6		
5.	1413 × 7	3504 × 8	2189 × 4	6097 × 5	2985 × 3	2358 × 3	2278 × 4		
6.	4325 × 6	6879 × 3	3245 × 5	5796 × 2	2478 × 7	6753 × 4	2134 × 7		

Part II

7.	40 × 10	30 × 20	10 × 80	20 × 10	40 × 20	10 × 50	20 × 20	10 × 70	20 × 40	30 × 30
8.	41 × 20	32 × 30	24 × 20	23 × 30	43 × 20	21 × 30	58 × 10	34 × 20	33 × 20	20 × 30
9.	30 × 31	40 × 11	30 × 32	10 × 97	20 × 43	30 × 21	20 × 41	10 × 65	20 × 32	40 × 12
10.	11 × 32	61 × 11	14 × 12	13 × 22	11 × 43	14 × 21	22 × 22	17 × 11	55 × 11	11 × 34
11.	24 × 22	22 × 43	68 × 11	22 × 44	12 × 34	23 × 32	34 × 22	44 × 21	14 × 20	41 × 12
12.	33 × 31	96 × 11	33 × 33	95 × 11	11 × 92	32 × 32	11 × 94	99 × 11	32 × 22	12 × 22

Two-Step Problems

Read each problem. Decide what two steps you must take to find the answer, and why you must take each step. Then find the answer for the question the problem asks.

1. Mrs. Roberts bought 2 bags of oranges with 18 oranges in each bag. The family uses 6 oranges each day. How many days will the oranges last?

Step 1. Multiply to find how many oranges Mrs. Roberts bought.

Step 2. Divide to find how many days the oranges will last.

What is the answer? Tell why you must multiply before you can divide.

Step 1	Step 2
18	6
×2	6)36
36	

2. Two boys bought 3 dozen marbles at 18¢ a dozen, and shared the cost equally. How much was each boy's share?

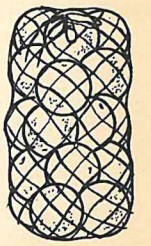
3. Mrs. Jones bought 9 quarts of cherries at 21¢ a quart. What was her change from $2.00?

4. In each of 12 classrooms in Brown School there are 5 rows of seats with 6 seats in each row. How many seats are there in all 12 of the rooms?

5. Each of 3 girls baked 14 cupcakes for a cake sale. They wanted to pack them in boxes with 6 cupcakes in each box. How many boxes did they need?

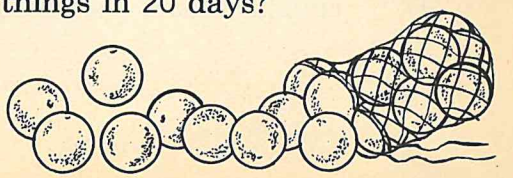
6. Joan bought 3 pencils at 5¢ each, and a book for 79¢. How much did she spend in all?

7. John's father spent $3.25 for gas, $2.00 for oil, $1.50 for a tire repair. What was his change from $10.00?



8. Two boys sold 6 boxes of berries at 15¢ each. How much should each boy receive?

9. Each day Mr. Hunt spends 5¢ for a paper, and 26¢ for carfare. What will he spend for these things in 20 days?



Helping at the Grocery Store

One Saturday John and Mary helped in their father's grocery store. Read the problems to find some of the things that they did. Then find the answer for each problem.

1. John unpacked 11 boxes of candy bars. There were 24 bars in each box. How many candy bars did he unpack in all?

2. Mary helped fill 34 cartons with eggs. Each carton held 12 eggs. How many eggs were there in all the cartons?

3. John filled 33 bags with oranges. He put 32 oranges in each bag. How many oranges did he use?

4. Mary waited on 4 girls who bought 2 cartons of pop at 24¢ a carton. They wanted to share the cost equally. How much should each girl pay?

5. John sold a lady 2 cans of soup at 15¢ a can and a box of crackers for 19¢. How much should he charge the lady?

6. A bushel of peaches was marked $3.99. Last week the price had been $5.24. How much lower is the price of a bushel of peaches now than it was last week?

7. One lady bought 3 cans of soup for 39¢. How much change should she get from 50¢ ?

8. Another lady bought 3 cans of soup for 39¢, a bag of oranges for 98¢, and a bushel of peaches for $3.99. How much change should she receive from $10?

Giving Quick Answers

Read each problem on this page and be ready to give the answer quickly when you are called upon. Also be ready to tell how you got the answer.

1. Herbert is 52 inches tall and William is 48 inches tall. How much taller is Herbert than William?

2. If Wilma has 15¢ and spends 9¢ for an ice cream cone, how much does she have left?

3. In one room at school there are 18 girls and 12 boys. How many children are there in the room?

4. At 20¢ each, what will 6 workbooks cost?

5. Hazel bought 6 oranges at the store for 24¢. What was the cost of each orange?

6. There are 30 children in a fourth-grade class and each one brought 10¢ for a notebook. How much money did the children bring in all?

7. If the thermometer rises from 27° to 31° between 9 o'clock and 10 o'clock, how many degrees has it risen?

8. The radio announcer said that the temperature was 28° above zero. Was it above or below freezing?

9. Each week Esther's father works 8 hours a day for 5 days. How many hours does he work each week?

10. If the clock shows 9:20 now, what time will it show in 15 minutes?

11. If there are 9 persons on a bus and each had paid 7¢ fare, how much had they paid altogether?

12. What is the perimeter of a 1-foot square?

13. The 22 children in Mrs. Peterson's room are making tickets for the school play. Each child is to make 10 tickets. How many will they make altogether?

Find the answer for each example on this page.

Subtract:

1.

6001	8503	52425	7424	\$50.42	37845	53365
2537	6382	1748	5258	27.85	3960	5683

Divide:

2. $9\overline{)54}$ $6\overline{)66}$ $6\overline{)33}$ $7\overline{)30}$ $\$.04\overline{)\$.84}$ $3\overline{)\$.69}$

Add:

3.

852	7410	\$163.05	7561	34144	173	625
7436	3064	50.79	3647	6344	4203	437
6527	620	5.60	2798	10123	62	856

Multiply:

4.

20	40	31	21	23	13	1354	\$45.63
14	21	20	40	32	23	7	4

Copy and write the missing numbers.

5. $\frac{3}{4}$ of 8 = ? $\frac{3}{5}$ of 30 = ? $\frac{2}{3}$ of 15 = ?

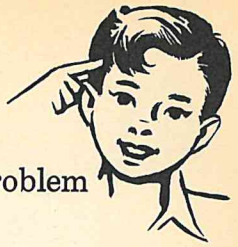
Solve these problems:

6. A farmer brought a load of 22 bushels of oats to the feed store. If a bushel of oats weighs 32 pounds, how much would the load of 22 bushels weigh?

7. Betty wanted to distribute 3 packages of paper equally among 9 girls. Each package contained 24 sheets. How many sheets should she give to each girl?

8. A grocer wanted to put the sugar from 3 torn 25-pound bags into 5-pound bags. How many 5-pound bags of sugar will he have?

9. Find the cost of a model airplane at \$2.07, a pair of roller skates at \$4.75, and a fishing reel at \$7.49.



To Help You Remember

The page numbers after each question, example, or problem tell you where to turn for help if you need it.

▶ *To think and talk about:*

1. When you multiply 41 by 12, what is the product of the ones called? What is the product of the tens called? What is the answer sometimes called? (213)

2. Tell why you have to use addition when you multiply 31 by 23. (213)

3. What steps should you take to solve a problem in arithmetic? (109)

4. If someone owed you 32¢ and paid you with a half-dollar, how would you make change? (69)

5. Explain why XCIV is the Roman number for 94. (181)

6. Tell how to subtract 22 from 500 without crossing out figures in the minuend and writing new figures. How would you subtract 222 from 500? (52, 71, 72)

7. Tell what short way you could use to find the answer to this example: 40×20. (210)

▶ *To think about and write:*

1. If each of 11 girls makes 18 cookies for a school party, how many cookies will there be in all? (213)

2. Multiply 30×21 the short way. (211)

3. Subtract 1122 from 6000. Remember the changed figures in the minuend, but do not write them. (72, 144)

4. Write 126 as a Roman number. (181)

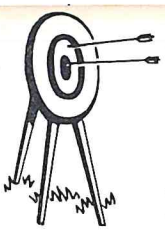
Find the answers for these multiplication examples:

5. 40 ×20 (210)

6. 20 ×43 (212)

7. 23 ×30 (211)

8. 21 ×42 (213)



Testing Yourself

Find the answer for each example on this page.

Add:

1.

327	8724	6666	$130.65	5492	335	$42.25
655	329	4221	213.92	3781	7842	3.86
924	4000	972	45.27	4265	2769	.49

Multiply:

2.

10	60	60	23	78	32	$82.85	5392
98	11	10	30	11	33	3	5

Subtract:

3.

562	4305	6204	$263.19	9053	$31.75	7500
397	1748	5469	135.00	4375	16.98	3248

Divide:

4. $7\overline{)63}$ $7\overline{)84}$ $5\overline{)41}$ $3\overline{)47}$ $\$.05\overline{)\$.92}$ $2\overline{)\$.57}$

Copy and write the missing numbers.

5. $\frac{2}{5}$ of 30 = ? $\frac{5}{6}$ of 48 = ? $\frac{3}{8}$ of 16 = ?

Find the answers for these problems.

6. Joan had $29.25 in her savings account. She took out $12.50 to buy presents. How much money did she have left in the account?

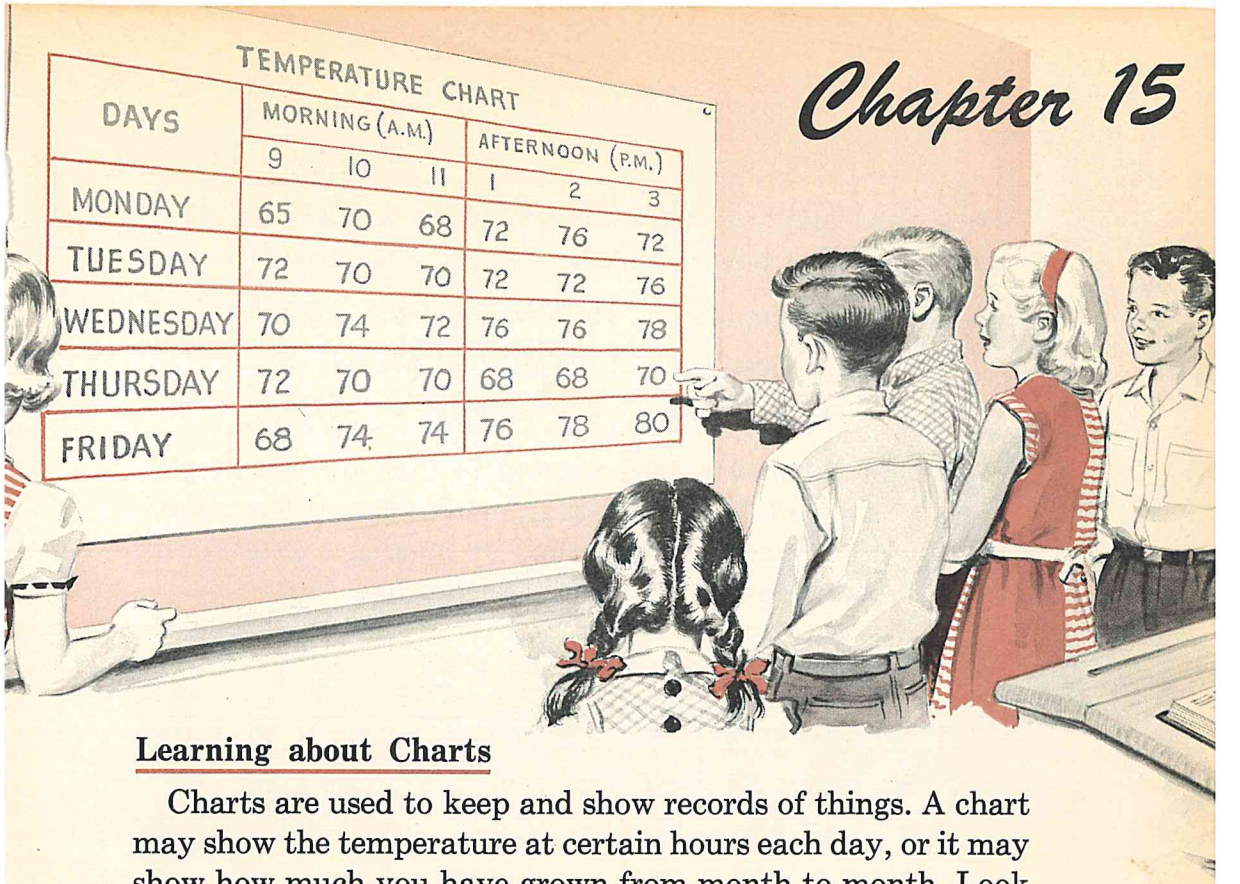
7. George has a square plot for a garden. Its perimeter is 96 feet. How long is each of the 4 sides of the garden?

8. The Girl Scouts baked cookies for a big picnic. Each of the 20 girls baked 30 cookies. How many cookies did they have for the picnic?

9. Dean bought a savings bond for $18.75 and 6 twenty-five-cent savings stamps. How much did he pay in all?

10. Find the sum of 6847 and 9653.

Chapter 15


TEMPERATURE CHART
DAYS
MORNING (A.M.)
AFTERNOON (P.M.)
9 10 11 1 2 3
MONDAY 65 70 68 72 76 72
TUESDAY 72 70 70 72 72 76
WEDNESDAY 70 74 72 76 76 78
THURSDAY 72 70 70 68 68 70
FRIDAY 68 74 74 76 78 80

Learning about Charts

Charts are used to keep and show records of things. A chart may show the temperature at certain hours each day, or it may show how much you have grown from month to month. Look at the temperature chart in the picture.

1. Do you see that the left-hand column names the days of the school week?

2. Do you see that the rest of the chart is divided into two parts, one for morning and the other for afternoon?

3. Do you see that each of the other columns is headed with a number that tells the hour the temperature was read?

4. Can you tell what the numbers in each column mean?

5. To read what the temperature was at 2 p.m. on Wednesday, find the word Wednesday and the column for 2 p.m. Look down to the line for Wednesday. What was the temperature?

6. What was the temperature at 9 a.m. on Monday? At 3 p.m.? At 1 p.m. on Friday? When does the chart show the temperature was highest? When does it show it was lowest?

Making Charts

Each time Jane was weighed at school she wrote in her diary a sentence telling how much she weighed, like this:

On September 15 I weighed 80 pounds.

On October 15 I weighed 81 pounds.

On November 15 I weighed 83 pounds.

Whenever Jane wanted to look up her weight, she had to hunt through many pages of her diary. She decided to save time by making a *weight chart* which would show her weight, like this:

MY WEIGHT CHART

Date	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15
Weight	80	81	83	83	85	86	87	89	89	91

1. Keep your own *growth chart*, like this:

MY GROWTH CHART

Date	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15
Height										
Weight										

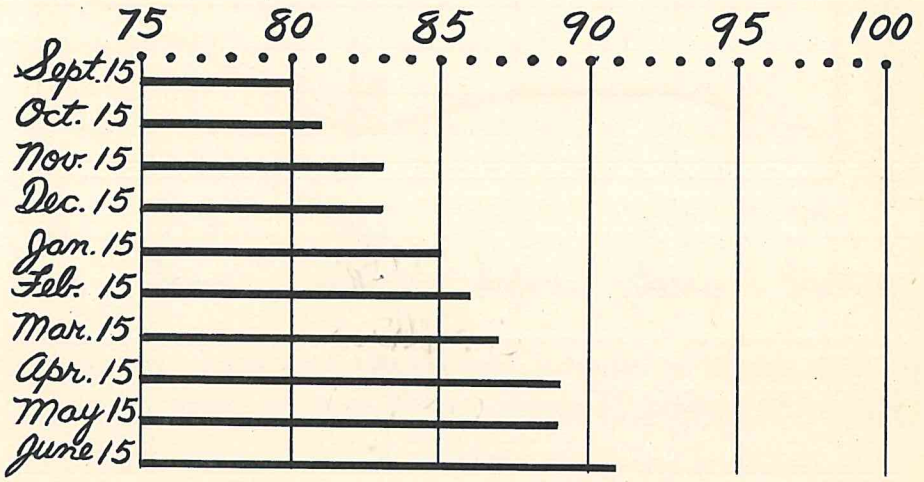
2. Make a *temperature chart* like the one below, and keep a record of the indoor and outdoor temperatures at 10 a.m. for a school week.

TEMPERATURE CHART

10 a.m.	Monday	Tuesday	Wednesday	Thursday	Friday
Indoor					
Outdoor					

Reading a Bar Graph

Miss Brown, the fourth-grade teacher, showed the children how to make a *bar graph* of Jane's weight record. This graph is called a bar graph because wide stripes, or *bars* are used to show Jane's weight.



To read the bar graph above, follow each bar from left to right to its end and read the number at the top of the graph directly above the right end of the bar. In the graph showing Jane's weight, all the numbers are not written, but you can count up to the right number. For example, Jane's weight on Oct. 15 is 81 pounds, because the end of the bar is under the point that stands for 81 on the line at the top.

Read the bar graph above and answer these questions:

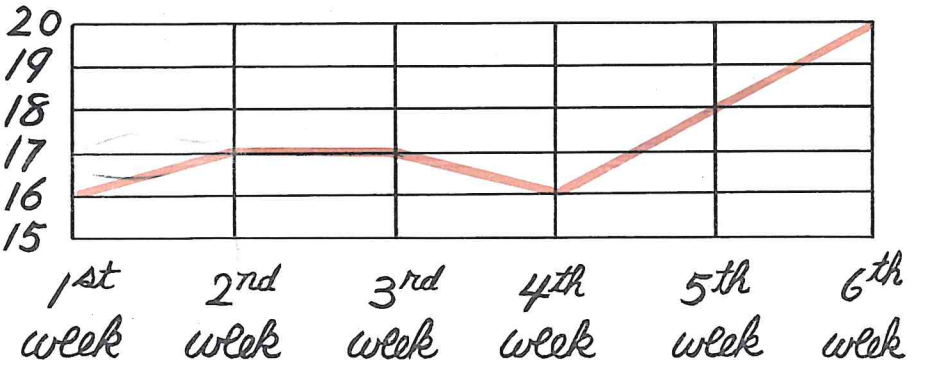
1. What was Jane's weight on Nov. 15? Jan. 15? June 15?

2. How many pounds did Jane gain between Oct. 15 and Nov. 15? Between Nov. 15 and Dec. 15? Between Mar. 15 and June 15? Between Sept. 15 and Jan. 15? Sept. 15 and June 15?

3. Find a bar graph in another book and learn to read it. Then tell the class what it shows.

Reading Another Kind of Graph

Miss Brown put another kind of graph on the board. This graph shows the number of words spelled right by one of the children in the class in each weekly test for six weeks.



This graph is called a *line graph*. The thick, brown line shows the number of words spelled correctly each week.

1. Read the line graph above to find how many words were spelled right the second week. Do it this way:

Find the black line which marks the second week. Follow this line up to the point where it crosses the thick, brown line. A thin, black line crosses the graph from left to right at this point. Follow this thin line to the number 17. The graph shows that 17 words were spelled correctly the second week.

2. Follow the same plan and find how many words were spelled correctly the fourth week. Your teacher will help you if you are not sure how to read the graph.

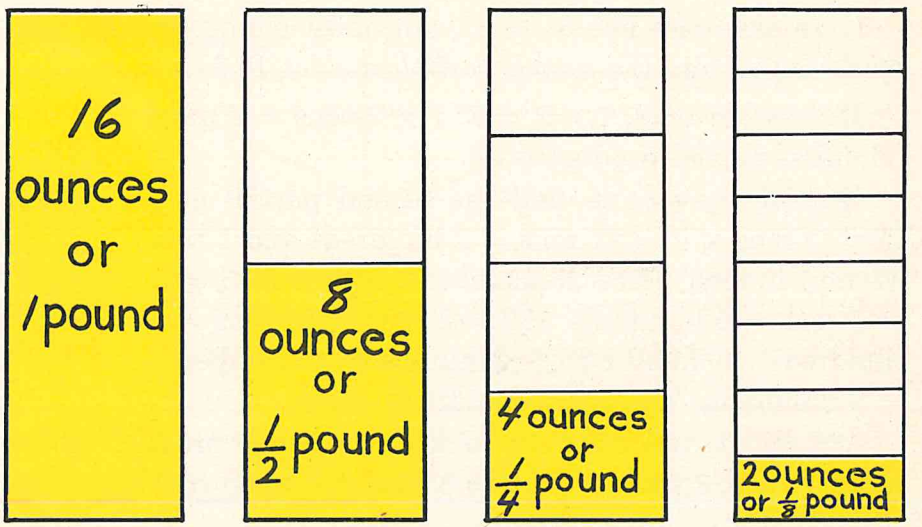
3. How many words were spelled correctly the fifth week? The first week? The third week? The sixth week?

4. How many words were spelled correctly in all six weeks?

5. Does the graph show that this child's spelling scores are getting better or worse? Tell why you think so.

Fractional Parts of 16 Ounces, or a Pound

Study the chart below. It shows that 16 ounces = 1 pound; that 8 ounces = $\frac{1}{2}$ of a pound; that 4 ounces = $\frac{1}{4}$ of a pound; and that 2 ounces = $\frac{1}{8}$ of a pound.



1. Do you see that:

$2 \times \frac{1}{2}$ of a pound = $\frac{2}{2}$ of a pound, or 1 pound?

$4 \times \frac{1}{4}$ of a pound = $\frac{4}{4}$ of a pound, or 1 pound?

$8 \times \frac{1}{8}$ of a pound = $\frac{8}{8}$ of a pound, or 1 pound?

2. Do you see that $\frac{1}{2}$ of a pound = $\frac{2}{4}$ or $\frac{4}{8}$ of a pound, and that $\frac{1}{4}$ of a pound = $\frac{2}{8}$ of a pound?

Find the number that belongs in each place where there is a question mark below. Use the chart if you need help.

3. $\frac{1}{2}$ of a pound = ? ounces $\quad\quad$ $\frac{3}{8}$ of a pound = ? ounces

4. $\frac{3}{4}$ of a pound = ? ounces $\quad\quad$ $\frac{5}{8}$ of a pound = ? ounces

5. 2 ounces = $\frac{?}{8}$ of a pound $\quad\quad$ 8 ounces = $\frac{?}{2}$ of a pound

6. 4 ounces = $\frac{?}{4}$ of a pound $\quad\quad$ 12 ounces = $\frac{?}{4}$ of a pound

Multiplying by Two-Place Multipliers

On pages 210, 211, 212, and 213, you learned how to multiply by a two-place multiplier. You know how to change tens to hundreds when multiplying.

1. In examples like 31 × 27, you must change *tens* to *hundreds* as you find the *second partial product*, like this:

Multiply by ones: 1 × 7 = 7. 1 × 2 tens = 2 tens. The first partial product is 27.

Multiply by tens to find the second partial product. 3 tens × 7 = 21 tens = 2 hundreds and 1 ten. Write 1 in tens' place. Remember 2 hundreds. 3 tens × 2 tens = 6 hundreds (30 × 2 tens = 60 tens = 6 hundreds). 6 hundreds + 2 hundreds remembered = 8 hundreds. Write 8 in hundreds' place.

```
  27
 ×31
 ---
  27
 81
 ---
 837
```

Add the partial products to find the total product. Bring down 7 ones. 2 tens + 1 ten = 3 tens. Bring down 8 hundreds.

The total product, or answer, is 837.

2. Use what you have learned. Copy, multiply and check:

12	28	13	15	26	29	49	12	14	48
74	21	73	61	31	21	21	84	72	21

3. In examples like 48 × 12, you must change *ones* to *tens* as you find the *first partial product*, like this:

Multiply by ones: 8 × 2 = 16 = 1 ten, 6 ones. 8 × 1 ten = 8 tens. 8 tens + 1 ten = 9 tens.

Multiply by tens: 4 tens × 2 = 8 tens. 4 tens × 1 ten = 4 hundreds.

Add the partial products: Bring down the 6 ones. Add the tens. Add the hundreds. Read the product.

```
  12
 ×48
 ---
  96
 48
 ---
 576
```

4. Find and check the products for these examples:

15	16	14	15	18	23	13	17	19	12
12	12	13	13	12	24	35	15	12	38

More about Two-Place Multipliers

In multiplication examples like 44 × 16, you change *ones* to *tens* as you find the *first partial product.* Then you change *tens* to *hundreds* as you find the *second partial product.*

1. Study the multiplication in this example. How was the first partial product found? How was the second partial product found? How was the total product found?

```
  16
 ×44
 ---
  64
 64
---
 704
```

2. Now find the products for these examples:

24	17	15	37	15	23	16	13	19	17
33	32	26	22	36	44	63	77	55	53

3. Study the multiplication in the example at the right. When we multiply numbers that stand for money, we multiply in the same way that we multiply other numbers. Then we put the dollar sign in front of the answer and the cents point two places from the right. There should always be two places to the right of the cents point for dimes and cents.

```
 $.24
 ×43
 ----
  72
 96
-----
$10.32
```

4. Find and check the product for each example below.

$.49	$.12	$.13	$.18	$.46	$.14	$.15	$.19
21	38	57	25	22	73	56	53

Now copy these examples, multiply, and check your answers:

5.	28	13	39	12	19	11	48	12	17	13
	32	31	21	28	32	98	21	86	42	27
6.	18	24	30	19	16	60	14	29	15	18
	32	44	20	53	36	10	45	31	24	12
7.	47	14	13	29	15	12	19	26	39	16
	23	46	53	21	20	88	33	33	22	66

Helping on the Farm

David helps his parents with the farm work. Here are some problems about things he did. Solve each problem.

1. David counted 31 bags of potatoes that weighed 15 pounds each. What is the total weight of these bags of potatoes?

2. If David and his mother put 12 eggs in each carton, how many eggs did they use to fill 18 cartons?

3. Mrs. Gray sold the eggs for $.63 a dozen. How much money did she get for 10 dozen?

4. David and his father set out 13 rows of cabbage plants with 24 plants in each row. How many plants did they set out?

5. David sold 22 quarts of strawberries at 35¢ a quart. How much money did he get for the strawberries?

6. On Monday David found 48 eggs in one chicken house and 69 eggs in the other. At this rate, how many eggs would he find in both chicken houses in a week?

7. David had $3.00. He bought a new collar for his dog. It cost $2.25. How much money had David left?

8. David put potatoes into 14 paper bags that held 15 pounds each. How many pounds of potatoes did he use?

9. David sold 4 chickens. One weighed 7 pounds, another 4 pounds, the third 6 pounds and the fourth 5 pounds. He was paid 46¢ a pound. How much money did he get?

10. One weekend David sold 53 pint boxes of berries at 19¢ a box. How much did he get for the berries?

11. One month Mr. Gray sold 86 dozen eggs. How many eggs was that? (12 eggs = 1 dozen)

More Examples with Two-Place Multipliers

Study the multiplication in the four examples just below. Notice that in finding the *first partial product* in each example, *tens* were changed to *hundreds*. That is why each first partial product is a three-place number.

21	34	16	$.19
×46	×24	×68	×59
126	136	128	1 71
84	68	96	9 5
966	816	1088	$11.21

1. Explain how to find the answer for each example above.

Find and check the products for the examples in each row:

2.	53	42	20	61	90	91	31	83	81	32
	12	23	48	15	12	19	37	13	12	34
3.	63	31	21	21	84	71	92	31	41	21
	13	26	29	39	12	17	12	36	27	49
4.	45	29	22	12	76	65	32	42	82	93
	13	17	36	49	14	18	37	28	19	15
5.	48	19	33	34	88	22	43	44	22	98
	13	16	26	27	12	46	24	26	49	15
6.	39	27	19	18	38	49	23	49	48	28
	24	26	27	39	27	25	48	29	23	36
7.	17	28	27	25	23	28	47	46	12	47
	27	35	37	29	47	39	27	23	89	29

8. $.93	$.42	$.54	$.33	$.14	$.28	$.27	$.25
13	24	19	35	79	27	26	17

If you missed the answers to any of these examples, find out where you made your mistakes.

More Two-Place Multipliers

Study the four examples just below. In finding the *second partial product* in each example, *hundreds* were changed to *thousands*. That is why each second partial product is a four-place number, even though we do not write 0 in ones' place.

30	22	27	49
×53	×84	×62	×62
90	88	54	98
150	176	162	294
1590	1848	1674	3038

1. The four examples above are not worked in exactly the same way. Explain how to find each answer.

Find the product for each example below. Check your work.

2.	90	30	$.20	21	20	$.20	33	91	48
	61	81	63	71	83	94	52	70	41
3.	53	32	$.91	21	93	$.71	22	43	21
	21	41	51	64	21	71	43	92	84
4.	22	34	$.56	23	47	$.12	32	81	64
	63	32	21	83	71	94	33	91	71
5.	66	97	$.42	32	44	$.85	22	48	19
	61	21	72	63	92	71	94	52	74
6.	45	28	$.26	35	18	$.37	28	36	49
	42	53	72	82	94	62	72	32	82
7.	29	49	$.24	18	16	$.47	28	39	37
	43	52	64	65	86	82	73	52	82
8.	24	49	$.48	72	38	$.31	23	14	31
	84	42	42	51	92	93	63	87	91

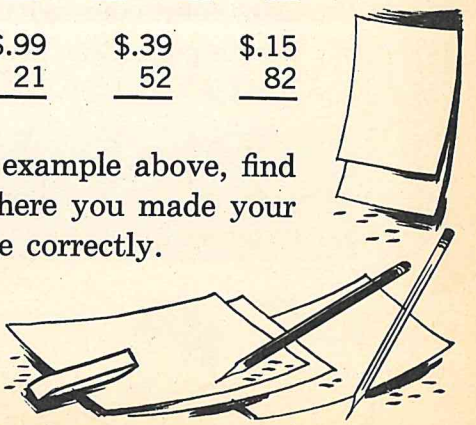
9. $74 \times 16 = ?$ $48 \times 21 = ?$ $28 \times 29 = ?$ $15 \times 95 = ?$

Making Sure of Multiplication

Find the product for each multiplication example on this page. Be sure to check each answer.

1.	64	75	43	86	32	$.97	$.54	$.29	$.36
	× 5	× 3	× 8	× 4	× 9	× 2	× 6	× 7	× 5
2.	289	698	175	$4.63	$9.76	$5.55	$4.50		
	× 4	× 2	× 8	× 7	× 3	× 9	× 5		
3.	4342	6534	5453	$23.54	$32.45	$20.90			
	× 7	× 8	× 4	× 7	× 9	× 8			
4.	40	20	70	30	20	10	30	40	80	20
	× 10	× 10	× 10	× 10	× 30	× 50	× 30	× 20	× 10	× 40
5.	12	31	11	42	21	13	33	23	18	14
	× 40	× 20	× 90	× 20	× 30	× 20	× 30	× 30	× 10	× 20
6.	10	20	30	10	30	50	10	20	30	40
	× 24	× 41	× 32	× 69	× 23	× 22	× 75	× 33	× 21	× 11
7.	22	33	48	22	43	11	87	33	28	22
	× 12	× 21	× 11	× 32	× 21	× 96	× 11	× 33	× 72	× 94
8.	15	14	12	13	26	18	13	24	19	47
	× 61	× 72	× 53	× 62	× 31	× 21	× 42	× 42	× 74	× 71
9.	13	14	12	16	24	12	14	13	91	16
	× 15	× 14	× 15	× 12	× 23	× 17	× 25	× 37	× 81	× 74
10.	27	16	25	17	38	13	24	19	72	20
	× 32	× 24	× 23	× 34	× 22	× 56	× 43	× 54	× 51	× 64
11.	$.33	$.19	$.47	$.25	$.99	$.39	$.15			
	× 35	× 27	× 24	× 17	× 21	× 52	× 82			

If you had the wrong answer for any example above, find out from your teacher or a classmate where you made your mistake. Learn how to work the example correctly.



Finding Averages

Each Friday the fourth-grade children have a spelling test on the words they have studied that week. In 4 weekly tests Shirley spelled correctly 20 words, 17 words, 21 words, and 22 words. What was the average number of words spelled correctly?

You find the *average* of several different numbers like this:

Add all of the numbers to find the sum.
Divide the sum by the number of addends.

In this example the sum of the 4 addends is 80. Since you want to find the average of the 4 addends, you divide 80 by 4. The average is 20. Shirley spelled correctly an average of 20 words a week.

Step 1

$$\begin{array}{r} 20 \\ 17 \\ 21 \\ 22 \\ \hline 80 \end{array}$$

Step 2

$$4\overline{)80}\quad 20,\ 8,\ 0$$

Use what you have learned. Find the average of each group of numbers below.

1. 7, 5, 3

2. 12, 11, 16

3. 9, 6, 9, 8

4. 23, 22, 13, 30

5. 8, 9, 8, 6, 9

6. 24, 22, 16, 18

7. 3, 2, 4, 5, 7, 9

8. 16, 15, 19, 17, 13, 16

Find the answer for each problem below:

9. John had a bottle with some beans in it. He asked 3 other boys to guess the number of beans. They guessed 39, 26, and 34. What was the average of the three guesses?

10. John counted the beans and found that there were 35. Which guess was nearest the correct one? The average of the guesses was how near the correct number?

Now you have learned:

To find the *average* of several numbers, you *add* all the numbers *and divide* the sum by the number of addends.

Solving Problems

Read each problem carefully. Write A, S, M, or D to show whether you should add, subtract, multiply, or divide. If the problem has 2 steps write A, S, M, or D for each step. Then find the answer.

1. There are 72 boys in the Lincoln School who want to play baseball after school. How many teams of 9 boys each can be formed?

2. In four games Jim's team made 8 runs, 12 runs, 2 runs, and 6 runs. What was the average number of runs a game his team made in the four games?

3. In five games Jerry's team made 14 runs, 7 runs, 19 runs, 15 runs, and 5 runs. What was the average number of runs a game Jerry's team made in five games?

4. A farmer had 72 cabbage plants to set out. He plans to set them in 7 equal rows. How many plants will he have in each row, and how many plants will be left?

5. How many cans of peaches will it take to fill 33 boxes, if there are 2 dozen cans in each box? (12 = 1 dozen)

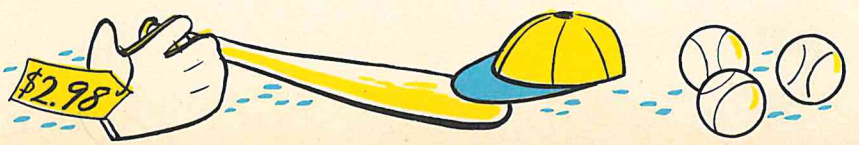
6. How many eggs will it take to fill 16 cartons if each carton holds a dozen eggs?

7. In seven days Gerald gathered 15, 9, 18, 9, 11, 14, and 8 eggs. What was the average number of eggs a day he gathered that week?

8. Jane went to the store for her mother. At 88¢ a pound, how much should she pay for $\frac{1}{4}$ of a pound of butter?

9. Jim wants to buy a catcher's glove for $2.98. If he saves $.25 a week out of his allowance for 6 weeks, how much more money does he need?

10. Betty bought a bag of sugar for $1.12 and 6 cans of corn at 17¢ a can. How much did she pay in all?



Review and Practice

Find the answer for each example below. Watch the signs.

1.

8099	4765	3657	5991	$92.67	$56.53
+572	+784	+593	+439	+9.83	+35.84

2.

5630	4000	7001	9004	$50.07	$39.07
−378	−2431	−4685	−3008	−42.79	−22.58

3.

8031	3312	6540	7004	$38.96	$14.21
507	7689	375	460	52.13	6.53
+1986	+2153	+9786	+8679	+10.01	+24.69

4.

30	32	12	72	22	32	42	36
×20	×30	×12	×11	×24	×32	×27	×51

5.

15	24	13	14	27	16	26	14
×61	×42	×37	×14	×32	×23	×35	×87

6. $4\overline{)22}$ $5\overline{)19}$ $7\overline{)30}$ $9\overline{)47}$ $8\overline{)43}$ $6\overline{)41}$ $5\overline{)37}$ $2\overline{)13}$

7. $3\overline{)63}$ $2\overline{)84}$ $5\overline{)55}$ $4\overline{)48}$ $2\overline{)62}$ $2\overline{)44}$ $3\overline{)36}$ $6\overline{)60}$

8. $5\overline{)80}$ $4\overline{)60}$ $6\overline{)90}$ $3\overline{)60}$ $5\overline{)70}$ $7\overline{)90}$ $5\overline{)65}$ $9\overline{)86}$

9. $2\overline{)43}$ $6\overline{)68}$ $7\overline{)76}$ $3\overline{)65}$ $8\overline{)89}$ $5\overline{)57}$ $9\overline{)93}$ $4\overline{)85}$

10. $7\overline{)93}$ $2\overline{)75}$ $6\overline{)87}$ $2\overline{)97}$ $5\overline{)89}$ $3\overline{)74}$ $8\overline{)92}$ $4\overline{)62}$

11. $\frac{1}{6}$ of a foot = ? inches $\frac{1}{2}$ of a pound = ? ounces

12. $\frac{1}{3}$ of a year = ? months $\frac{1}{4}$ of an hour = ? minutes

13. $\frac{1}{8}$ of 72 inches = ? inches $\frac{3}{4}$ of 36 feet = ? feet

Solve these problems:

14. A small doll was made from 9 yards of yarn. How many dolls can be made from 99 yards?

15. How many 7-yard lengths of yarn can be cut from 90 yards of yarn? How many yards of yarn will be left?

To Help You Remember

The page numbers following the questions, problems, or examples show you where to turn if you need help.

▶ *To think and talk about:*

1. How do you find out whether $\frac{1}{4}$ of a yard or $\frac{3}{4}$ of a foot is the longer? (38, 149)

2. Why do we use charts and graphs? (221, 222, 223, 224)

3. If a rectangular board is 8 inches long and 6 inches wide, how do you find out whether its area is greater or less than that of a 7-inch square? (192) How do you find out whether the perimeters of the two boards are the same or different? (162)

4. Name as many measuring units as you can. Tell what things are measured by each unit. (10, 36, 38, 40-41, 61, 68, 104, 192)

5. Tell how to find the product of 53×29. Explain each step for the class if you are asked to do so. (230)

6. How do you find the average of a group of numbers? (232)

▶ *To think about and write:*

1. What numbers belong where you see question marks? (38, 40, 61, 148, 149, 163-164)

$\frac{2}{3}$ of 1 ft. = ? in. $\frac{3}{4}$ of 1 lb. = ? oz. $\frac{5}{6}$ of 1 yr. = ? mo.

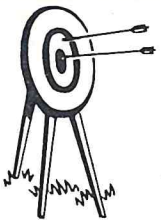
2. Find the average for each group of numbers: (232)

20, 29, 25, 14 6, 11, 9, 3, 5, 2 22, 25, 31

3. Find the numbers that are missing below:

7 ft. = ? in. (38, 48) 3 gal. = ? qt. (41, 45)

4. Find the area of a 5-inch square. Then find the area of a rectangle 3 inches wide and 5 inches long. (192) Which is larger? How much larger?



Testing Yourself

Find the answer for each example. Watch the signs.

1.

7321	6748	$3.25	$59.63	23750
583	7659	96.85	8.39	4825
+4932	+85	+37.65	+75.32	+673

2.

9083	7365	$38.92	$51.83	49580
−6135	−4973	−24.75	−34.86	−7321

3.

10	30	38	15	14	47	17	23
×32	×11	×21	×13	×27	×29	×32	×54

4. $9\overline{)72}$ $8\overline{)59}$ $5\overline{)70}$ $5\overline{)64}$ $8\overline{)96}$ $5\overline{)92}$ $6\overline{)98}$ $2\overline{)27}$

5. $\frac{3}{5}$ of 35 ft. = ? ft. $\frac{1}{6}$ of 1 hr. = ? min. $\frac{3}{4}$ of 84 ft. = ? ft.

Solve these problems:

6. An apple orchard has 24 rows of trees with 31 trees to the row. How many trees are there in the whole orchard?

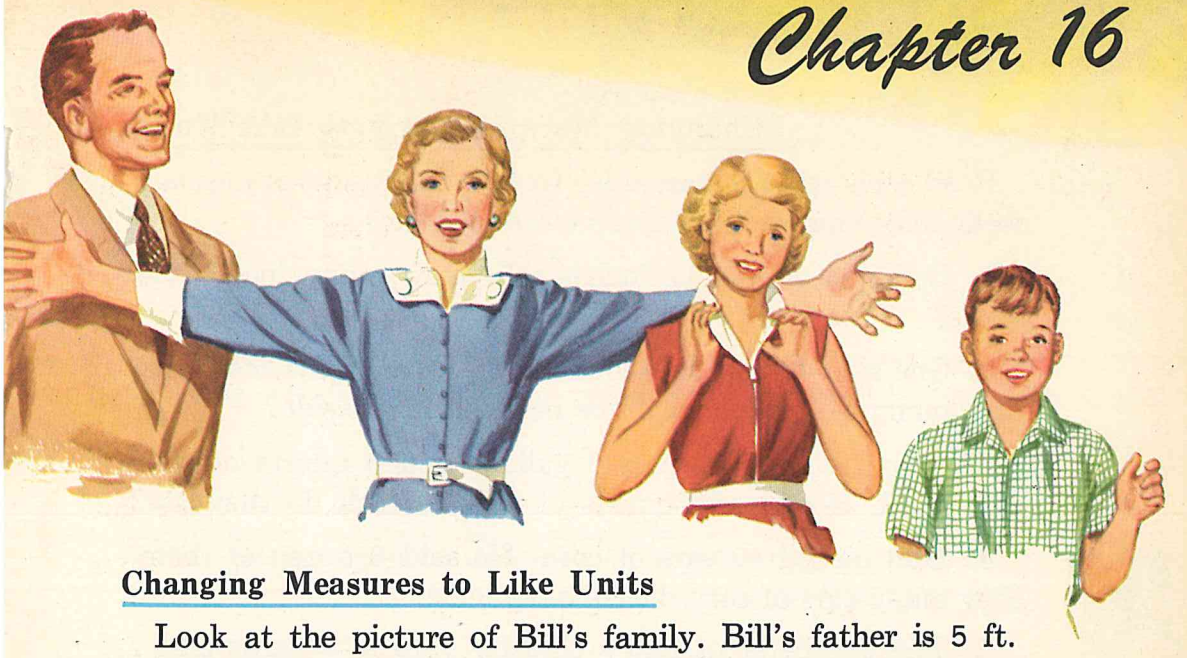
7. In six games the fourth-grade softball team made 8 runs, 12 runs, 6 runs, 15 runs, 9 runs, and 10 runs. What was the average number of runs a game the team made in those six games?

8. Harvey's uncle owns a grocery store. He sold $9.87 worth of groceries to one customer, $16.75 worth to another, and $11.69 to a third. How much money in all did he get from the three customers?

9. Last summer on a trip to Mexico City, with his father and mother, Robert took 96 pictures. He wants to put 8 pictures on each page of his photograph album. How many pages will he use?

10. 89 children plan to go to the circus in 3 buses. If an equal number of children ride in each bus, how many should ride in each bus and how many buses will have to carry an extra child?

Chapter 16



Changing Measures to Like Units

Look at the picture of Bill's family. Bill's father is 5 ft. 11 in. tall. His mother is 5 ft. 5 in. tall. Mary is 63 in. tall, and Bill is 56 in. tall.

Father's and Mother's heights are given in *feet* and *inches*. Mary's and Bill's are given in *inches*. To answer the questions below, you must change feet to inches.

You know how to change feet to inches. 1 ft. = 12 in., so 2 ft. = 2 × 12 in., and 4 ft. = 4 × 12 in.

Answer the questions below.

1. How many inches tall is Father?

Since 1 foot = 12 inches, then 5 feet = 5 × 12 inches, or 60 inches. 60 inches + 11 inches = 71 inches.

Father is 71 inches tall.

$$\begin{array}{r} 12 \\ \times 5 \\ \hline 60 \end{array} \qquad \begin{array}{r} 60 \\ +11 \\ \hline 71 \end{array}$$

2. How many inches shorter is Bill than Father?

3. How many inches more is Father's height than Mary's?

4. How many inches tall is Mother?

5. How many inches taller is Mother than Bill?

6. How many inches less is Mary's height than Mother's?

Changing More Measures to Like Units

Read each problem carefully. Decide which unit of measure needs to be changed. Then solve the problem.

1. Esther is 4 feet 11 inches tall. How many inches tall is she?

2. One side of the playground is 35 yards and 2 feet long. How many feet of fence will be needed for this side?

3. The Reed family uses 8 gallons and 3 quarts of milk each week. How many quarts of milk a week do they use?

4. Don picked 40 ears of corn. He sold 3 dozen of them. How many ears of corn did he have left?

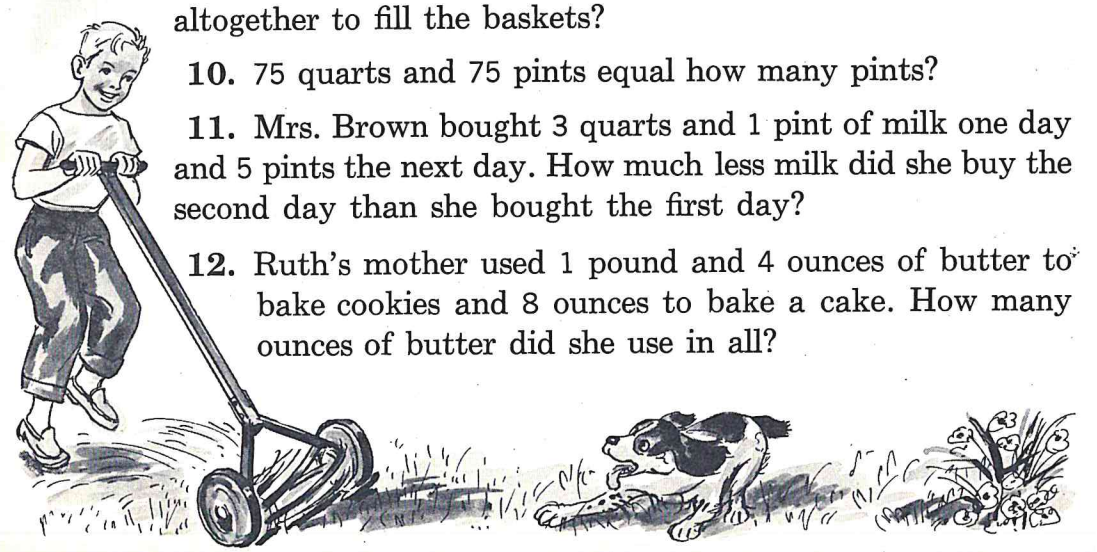
5. The perimeter of Roy's chicken yard is 8 yards and 1 foot. How many feet of fence wire does he need to fence it?

6. Henry's father needs 16 yards and 2 feet of electric cord. How many feet of cord does he need?

7. At 4¢ a foot how much will Henry's father have to pay for the cord? (Use the answer for problem 6.)

8. It takes 1 hour and 20 minutes for Steve to mow the lawn in his yard. It takes Peter 70 minutes to mow his lawn. How much longer does it take Steve than Peter?

9. John's father filled 8 bushel baskets and 19 peck baskets with potatoes. How many pecks of potatoes did he use altogether to fill the baskets?



10. 75 quarts and 75 pints equal how many pints?

11. Mrs. Brown bought 3 quarts and 1 pint of milk one day and 5 pints the next day. How much less milk did she buy the second day than she bought the first day?

12. Ruth's mother used 1 pound and 4 ounces of butter to bake cookies and 8 ounces to bake a cake. How many ounces of butter did she use in all?

Using Two-Place Multipliers

In each of the three examples just below, the *first* partial product is a *three-place* number. The *second* partial product is a *four-place* number, although no 0 is written in ones' place.

81	32	$.70
×26	×94	×65
486	128	3 50
162	288	42 0
2106	3008	$45.50

Study each example above. Explain how to find the answer.

Find these products. Check by multiplying again.

1.	90	60	31	50	81	52	31	30	43	60
	22	24	61	39	55	61	47	96	83	74
2.	81	70	91	72	60	41	80	91	83	41
	79	59	45	43	84	75	26	67	24	74
3.	71	31	72	91	71	31	94	61	64	72
	98	46	32	64	57	69	22	84	42	47
4.	83	52	62	73	62	53	73	92	43	41
	83	94	64	82	74	52	93	53	47	96
5.	64	73	62	32	83	64	42	52	92	64
	32	43	82	64	82	72	94	83	73	24
6.	84	52	72	93	32	84	62	74	37	81
	62	93	82	53	94	72	84	42	74	26

7.	$.50	$.71	$.21	$.92	$.52	$.73	$.42	$.83
	74	45	89	23	84	42	84	63

If you missed the answer for any example on this page, try to find your own mistake. If you need help, ask your teacher or another pupil to help you.

Dividing Tens in Three-Place Numbers

1. The school received 120 new desks to be divided equally among 4 rooms. How many desks will there be in each room?

The example for this problem asks, 120 = how many × 4? In working the example, hundreds must be changed to tens. Can you tell why? Find the answer like this:

Divide: Since 1 is less than 4, change 1 hundred to 10 tens. 10 tens + 2 tens = 12 tens. 12 tens = 3 tens × 4. Write 3 in tens' place in the quotient. *Multiply:* 3 tens × 4 = 12 tens. Write 12 below 12 in the dividend.

$$\begin{array}{r} 30 \\ 4\overline{)120} \\ \underline{12} \\ 0 \end{array}$$

Bring down the zero in ones' place. There are no ones to be divided, so write 0 in ones' place in the quotient.

How many desks will there be in each room?

2. Sometimes there are fewer ones in the dividend than in the divisor. These ones are the remainder. Study the example at the right and tell how to find the answer.

$$\begin{array}{r} 30\ r3 \\ 4\overline{)123} \\ \underline{12} \\ 3 \end{array}$$

Find the answer for each of these examples:

3. $3\overline{)270}$ $5\overline{)200}$ $8\overline{)320}$ $2\overline{)160}$ $7\overline{)420}$ $9\overline{)450}$ $4\overline{)240}$

4. $6\overline{)243}$ $4\overline{)201}$ $5\overline{)102}$ $3\overline{)241}$ $8\overline{)486}$ $7\overline{)355}$ $6\overline{)182}$

Solve these problems:

5. If 150 children are divided into 5 equal groups, how many children will there be in each group?

6. The girls baked 186 cookies for the bake sale. They put 9 cookies in each bag. How many bags of cookies did they have, and how many cookies were left?

7. Lila has 120 pictures. If she puts 6 on each page, how many pages of her picture book will she fill?

Dividing Tens and Ones in Three-Place Numbers

1. A grocer had 305 pounds of potatoes which he put into 5-pound bags. How many bags did he fill with potatoes?

The problem question means 305 = how many × 5? To find the answer, divide 305 by 5.

$$5\overline{)305}\quad 61$$

Divide: 3 is less than 5, so change 3 hundreds to 30 tens. 30 tens = 6 tens × 5. Write 6 in tens' place in the quotient. *Multiply:* 6 tens × 5 = 30 tens.

Bring down the 5 ones in the dividend.

Divide: 5 = 1 × 5. Write 1 in ones' place in the quotient. *Multiply:* 1 × 5 = 5. Write 5 below 5. There is no difference between the ones. No ones are left.

How many bags did the grocer fill with potatoes?

2. Study the example at the right. In it there is a difference between the ones. 7 − 5 = 2. The difference, 2, is the remainder.

$$5\overline{)307}\quad 61\text{ r}2$$

Find the answer for each of these examples:

3. $2\overline{)102}$ $3\overline{)186}$ $4\overline{)128}$ $9\overline{)369}$ $4\overline{)168}$ $9\overline{)459}$ $6\overline{)546}$

4. $5\overline{)405}$ $9\overline{)819}$ $6\overline{)426}$ $3\overline{)249}$ $8\overline{)648}$ $3\overline{)213}$ $5\overline{)205}$

5. $7\overline{)289}$ $6\overline{)367}$ $3\overline{)127}$ $5\overline{)356}$ $6\overline{)309}$ $5\overline{)407}$ $7\overline{)428}$

6. $4\overline{)247}$ $8\overline{)489}$ $5\overline{)458}$ $2\overline{)105}$ $3\overline{)278}$ $4\overline{)169}$ $3\overline{)275}$

7. $7\overline{)498}$ $4\overline{)366}$ $8\overline{)729}$ $2\overline{)149}$ $7\overline{)638}$ $4\overline{)209}$ $8\overline{)249}$

If you missed any of these examples, find out from your teacher or classmates where you made your mistakes.

Now you have learned:

- Sometimes, before you can divide a three-place dividend, you must change hundreds to tens.

More about Dividing Three-Place Numbers

1. Sometimes when you divide a three-place number, you find that there are tens left after you divide the tens. You change them to ones before you divide the ones.

Study the example at the right. You find the answer this way:

$$\begin{array}{r} 76 \\ 6\overline{)456} \\ \underline{42} \\ 36 \\ \underline{36} \end{array}$$

Divide: 4 is less than 6, so change 4 hundreds to 40 tens. 40 tens + 5 tens = 45 tens. 45 cannot be divided evenly by 6. Neither can 44, or 43. Try 42. 42 tens = 7 tens × 6. Write 7 in tens' place in the quotient. *Multiply:* 7 tens × 6 = 42 tens. Write 42 below 45. *Subtract:* 5 tens − 2 tens = 3 tens.

Bring down the 6 ones in the dividend. Change 3 tens to 30 ones. 30 + 6 = 36.

Divide: 36 = 6 × 6. Write 6 in ones' place in the quotient. *Multiply:* 6 × 6 = 36. Write 36 below 36.

The quotient is 76. There are no ones left. 456 ÷ 6 = 76.

2. Study the example at the right. In it there is a difference between the ones, so you subtract. 9 − 6 = 3. 3 ones are left. The difference, 3, is the remainder. The answer is 76 r3.

$$\begin{array}{r} 76\ r3 \\ 6\overline{)459} \\ \underline{42} \\ 39 \\ \underline{36} \\ 3 \end{array}$$

Explain how to find the answer to the example.

Find the answers for these examples:

3.	$2\overline{)112}$	$4\overline{)332}$	$3\overline{)102}$	$6\overline{)504}$	$4\overline{)104}$	$9\overline{)738}$	$5\overline{)370}$
4.	$3\overline{)268}$	$4\overline{)390}$	$7\overline{)406}$	$4\overline{)268}$	$3\overline{)117}$	$5\overline{)245}$	$6\overline{)144}$
5.	$2\overline{)174}$	$4\overline{)220}$	$3\overline{)288}$	$6\overline{)576}$	$8\overline{)584}$	$8\overline{)136}$	$7\overline{)112}$
6.	$5\overline{)317}$	$7\overline{)506}$	$6\overline{)445}$	$8\overline{)340}$	$7\overline{)678}$	$6\overline{)139}$	$7\overline{)234}$
7.	$3\overline{)208}$	$8\overline{)739}$	$2\overline{)193}$	$9\overline{)740}$	$4\overline{)333}$	$6\overline{)478}$	$9\overline{)427}$
8.	$3\overline{)231}$	$5\overline{)225}$	$6\overline{)325}$	$8\overline{)184}$	$7\overline{)590}$	$4\overline{)312}$	$2\overline{)135}$

Dividing Three-Place Money Numbers

To divide money numbers, you think of the money numbers as cents, and divide in the same way you divide other numbers.

1. Study example A. The dividend tells *how much* money *in all*. The divisor tells *how much* money *in each equal group*. The quotient tells *how many groups* there are.

The answer to example A is 94 r1¢. This means that \$1.89 = 94 groups of \$.02 each and that 1¢ is left.

Find the answers:

2. \$.04)\$2.00 \$.08)\$4.00 \$.06)\$3.00

3. \$.09)\$6.39 \$.04)\$3.68 \$.07)\$4.27

4. \$.05)\$3.59 \$.08)\$6.49 \$.06)\$3.68

5. Study example B. The dividend tells *how much* money *in all*. The divisor tells *how many equal groups*. The quotient tells *how much* money *in each equal group*.

The answer is \$.82 r1¢. When \$2.47 is divided into 3 equal groups there are \$.82 in each group and 1¢ is left.

Find the answer for each example. Be sure to use the dollar sign and the cents point correctly.

6. 9)\$6.30 2)\$1.20 7)\$5.60 4)\$3.60

7. 2)\$1.48 6)\$3.06 3)\$2.49 8)\$4.88

A \$.02)\$1.89

means

94 r1¢
2 cents)189 cents
18
9
8
1

or

94 r1¢
\$.02)\$1.89
18
9
8
1

B 3)\$2.47

means

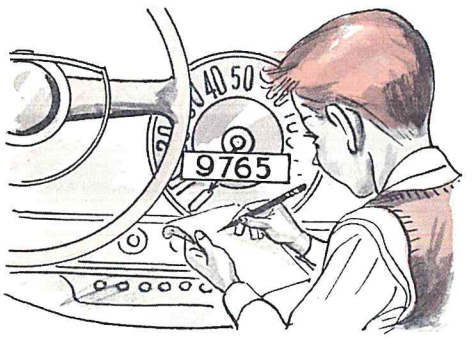
82 cents r1¢
3)247 cents
24
7
6
1

or

\$ .82 r1¢
3)\$2.47
24
7
6
1

An Automobile Trip

Dick and his father took a trip to California. Dick kept a record of some of the things that they did.



1. Dick said, "When we started this morning, our speedometer read 9497." Look at the picture and find out how far Dick and his father had driven.

2. Dick's father said that he planned to drive 425 miles the following day. What would the speedometer read then?

3. They drove the 357 miles between Omaha, Nebraska and Julesburg, Colorado in 7 hours. What was their average speed in miles per hour?

4. One day they drove 246 miles in 6 hours. How many miles an hour was that?

5. Father said that his car was going 19 miles on each gallon of gas. How far would 12 gallons of gas take them?

6. The 12 gallons of gasoline cost $.29 a gallon. What was the total cost?

7. At one station Dick's father bought 9 gallons of gasoline at 28¢ a gallon. How much did the gasoline cost?

8. At another station Dick's father paid $2.56 for 8 gallons of gasoline. What was the price for each gallon?

9. In Cheyenne, Dick's father paid $5.00 for a cabin at a motel and $2.75 for their dinner. How much did he have left from $10.00?

10. In California, Dick's father bought 3 boxes of fruit to ship back home to his friends. If each box cost $2.98, how much did he pay for all the boxes?

Solving Problems

Read each problem carefully. For each step in the problem decide whether you should add, subtract, multiply, or divide, and write A, S, M, or D. Then find the answer for the question the problem asks.

1. Mary bought 5 pairs of socks at $.29 a pair. How much change should she receive from $2.00?

2. A farmer wants to plant 160 cherry trees in 5 rows. How many trees can he plant in each row?

3. The school store sold 36 big notebooks at 25¢ each during the month of March. How much did the store get for all of the notebooks?

4. A storekeeper bought 12 packages of notebook paper at $.62 a package. How much did he pay?

5. Tom raised 248 melons in his garden last year. When he sold them, he packed 8 melons in a box. How many boxes did he use?

6. John's father drove 890 miles to Boston. He drove 376 miles the first day and 298 miles the second day. How many miles did he still have to drive?

7. Each of the 27 children in Miss Anderson's room brought $.42 to school to buy a spelling book. How much money did they bring in all?

8. Betty received $.25 an hour for baby sitting. One month she worked 19 hours. How much more money did she need to buy a sweater that cost $5.98?

9. Ray's father gave him $1 for spending money. Ray spent $.25 for a show, $.10 for popcorn, and $.10 for carfare. How much money did he have left?

10. How many notebooks are there in 49 packages if there are 12 notebooks in each package?

Changing Measures to Larger Units

Read this problem carefully. Can you tell how to solve it?

1. Helen's mother canned 48 pints of cherries. If she had put the cherries into quart jars, how many quarts of cherries would she have had?

The question means, 48 pints = how many quarts?

Since 2 pints = 1 quart, you divide 48 by 2 to answer the problem question. How many quarts of cherries would Helen's mother have had? $48 \div 2 = 24$.

$$2\overline{)48}\quad 24$$
$$4$$
$$8$$
$$8$$
$$-$$

Find the missing number for each example below.

2. ? ft. = 1 yd.

3. 15 ft. = ? yd.

4. ? da. = 1 wk.

5. 28 da. = ? wk.

6. 91 da. = ? wk.

7. 182 da. = ? wk.

8. ? qt. = 1 gal.

9. 96 qt. = ? gal.

10. 16 pk. = ? bu.

11. 120 pk. = ? bu.

Read each problem carefully and decide by what number you will have to divide. Then solve the problem.

12. The milkman delivered 164 pints of cream on his route last week. How many quarts of cream is that?

13. John's father bought 12 quarts of oil for his car. How many gallons of oil was that?

14. How many yards of rope are 36 feet of rope?

15. Lorraine said that it was 84 days until Christmas. How many weeks would it be until Christmas?

Using Fractions to Solve Problems

Read each problem carefully. Remember what you have learned about finding the size of a fractional part of something. Then solve each problem. If you need help, review pages 148, 149, 163, and 164.

1. Judy used $\frac{1}{3}$ of a 45-inch ribbon to trim a doll dress. How many inches of ribbon did she use?

2. Roy had a board that was 8 feet long. He needed $\frac{3}{4}$ of it for a shelf. How long was the shelf to be?

3. Edward had 15¢. He spent $\frac{1}{3}$ of it for an ice cream cone. How much money did he spend?

4. Lucy bought $1\frac{1}{2}$ yards of cloth. How many inches of cloth is that?

5. Lucy used $\frac{1}{2}$ of the cloth to make an apron. How many inches of cloth did she use?

6. Bill's mother baked 36 cookies. Bill and his friends ate $\frac{1}{4}$ of them. How many cookies did they eat?

7. The Browns buy 2 gallons of milk a day. If they use $\frac{1}{4}$ of it at breakfast, how many quarts of milk is that?

8. Dan's mother bought a dozen bananas. The family ate $\frac{1}{3}$ of them at lunch. How many bananas were eaten?

9. If it takes $\frac{3}{4}$ of an hour to bake a cake, how many minutes does it take?

10. Margaret used $\frac{1}{3}$ of a 3-pound box of candy for the party she gave. How many ounces of candy did she use?

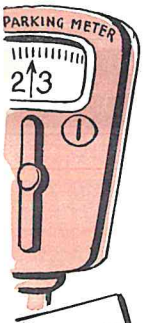
11. Sarah had $1.80. She spent $\frac{1}{6}$ of it for a game. How much did the game cost?

12. Gregory had 168 stamps in his collection. He sold $\frac{1}{8}$ of them to a friend. How many stamps did he sell?

13. How many ounces of sugar equal $\frac{3}{4}$ of a pound of sugar?

Problems to Solve

Find the answer for each problem on this page. If you miss the answer for any problem, find out from your teacher or your classmates where you made your mistake.



1. Our city has parking meters. We can park 12 minutes for a penny. Jane's mother put in 4 pennies and came back in 25 minutes. How many minutes were there left on the parking meter?

2. Ruth goes to school 6 hours each day. She is supposed to get 10 hours sleep each night. How much time does that leave her for other things each day?

3. A cement dealer said that during May he sold 3224 bags of cement. In April he had sold 2798 bags. How many more bags of cement did he sell in May than in April?

4. Mr. Carlson bought some boards for $4.75 and a gallon of paint for $4.98. How much change did he get from $10.00?

5. Dick bought 3 boards of the same kind for $2.07. What was the cost of each board?

6. At $4.98 a gallon, how much will Mr. Adams have to pay for 4 gallons of paint?

7. Jack's father needs 25 square feet of plywood. If he buys a piece of plywood that is 4 feet wide and 8 feet long, how many square feet of plywood will he have left?

8. Jim bought 5 pounds of nails at 7¢ a pound. How much change should he get from 50¢ ?

9. There will be 3 buses to take 105 children on a trip. How many children should there be in each bus if the same number of children ride in each bus?

10. When Sally's family started on a week-end trip, the speedometer of the car read 18734. At the end of the trip it read 19013. How far did they drive?

Using What You Have Learned

Read each problem carefully. Be sure that you understand what it tells and what question it asks. Write A, S, M, or D to show what you will do to answer the question. Then find the answer.

1. Each of the 27 children in a class brought 35¢ to pay the expenses for a picnic. How much money did they bring altogether?

2. The Boy Scouts have 135 boys in a camp. Each tent holds 6 boys. How many full tents will there be and how many boys will be in the last tent?

3. One side of the school playground is not fenced. This side is 231 feet long. How many yards of fence are needed to build a fence along this side?

4. Bob read that an airplane flew for 5 hours at a speed of 250 miles an hour. How far did it travel?

5. Nancy read that a freight train traveled 264 miles in 8 hours. How many miles did it travel an hour?

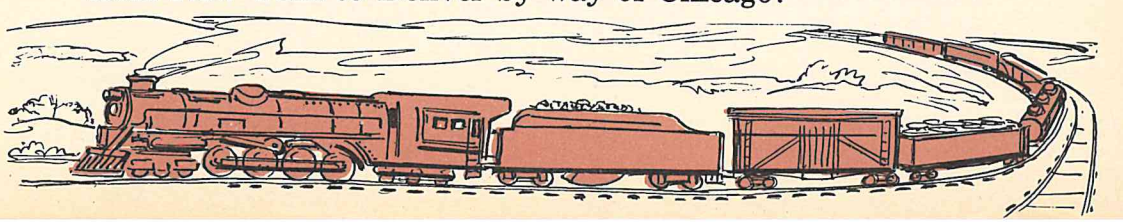
6. Jerry's brother received $4.85 for newspapers that he sold at 5¢ each. How many papers did he sell?

7. The girls in the fourth grade bought 4 dozen doughnuts for $1.50 and sold them at the cookie sale for 60¢ a dozen. How much profit did they make on the sale?

8. The girls sold 15 dozen cookies for 30¢ a dozen. How much money did they get for all of the cookies?

9. Harry's father used 18 gallons of gasoline on a trip. At 31¢ a gallon, how much did he spend for gasoline?

10. Doris said that it was 889 miles from New York to Chicago and 1052 miles from Chicago to Denver. How far is it from New York to Denver by way of Chicago?



Review and Practice

Find the answer for each example on this page. Watch the signs.

1.

321	1320	9102	10	16	21	$.20
×3	×3	×4	×52	×49	×84	×99

2.

4132	875			3412	
321	476			1234	4563
213	329	2615	$89.77	1352	2518
+121	+8720	+3172	+47.65	+683	+224

3.

$4.68	$85.00	7895	2005	8967	6162
−2.79	−6.85	−854	−347	−3425	−4686

4. $4\overline{)15}$ $5\overline{)57}$ $6\overline{)558}$ $6\overline{)325}$ $6\overline{)307}$ $\$.05\overline{)\$3.07}$ $4\overline{)\$3.05}$

5. $\frac{1}{4}$ of 16 oz. = ? oz. $\frac{3}{4}$ of 1 doz. eggs = ? eggs.

18 bu. = ? pk. 39 ft. = ? yd. 105 da. = ? wk.

6. Find the missing numbers:

2 wk. 3 da. = ? da. 4 hr. 15 min. = ? min.

Solve these problems:

7. A truck loaded with steel weighed 9178 pounds. The empty truck weighed 4989 pounds. How much did the steel weigh?

8. A farmer had 132 chickens which he divided equally between 2 coops. How many chickens were there in each coop?

9. A grocer sold 99 cartons of eggs in one day. There were a dozen eggs in each carton. How many eggs did he sell?

10. Barbara's father drove 3025 miles from New York to Seattle, 2731 miles from Seattle to New Orleans, 1279 miles from New Orleans to Minneapolis, and 1261 miles from Minneapolis back to New York. How many miles did he drive?

To Help You Remember

Answer the questions on this page. The numbers after the questions tell you where to turn for help if you need it.

▶ *To think and talk about:*

1. How do you find the first partial product in the example at the right? How do you find the second partial product? The total product? (213)

$$\begin{array}{r} 96 \\ \times 11 \\ \hline \end{array}$$

2. Why should you be able to estimate the answer for a problem or tell whether the answer is a sensible one? (133-35, 201)

3. Explain how you would change 5 qt. and 3 pt. to pints. (237)

4. Tell how you would divide 815 by 9. (240)

5. Explain how to change 108 ft. into yards. (246)

6. Explain how to work these two examples: $\$.03\overline{)\$2.58}$ and $2\overline{)\$1.19}$. Tell what each answer means. (242, 243)

7. Explain how you would find the product of this example: $83 \times \$.62$. What kind of a number is each partial product? (239)

▶ *To think about and write:*

1. Multiply: 91×43; 81×55; 62×82. (239)

2. Find the missing numbers: (237, 246)

5 ft. = ? in. 3 ft. 5 in. = ? in. 8 lb. 6 oz. = ? oz.

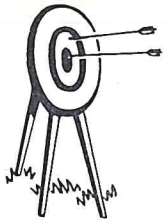
15 bu. = ? pk. 9 wk. = ? da. 24 hr. = ? min.

3. Divide: $285 \div 3$; $\$2.50 \div \$.05$; $\$8.19 \div 9$. (242, 243)

4. Find: $\frac{5}{6}$ of 24; $\frac{3}{5}$ of 45; $\frac{7}{8}$ of 64; $\frac{5}{8}$ of 56. (163-64)

5. Which do you think is the right answer for 3334×3? 9992, 10002, 9902, or 9002? (201) Find the exact answer. (158)

6. In 4 arithmetic tests Frank made scores of 80, 75, 95, and 70. Is 70, 80, or 90 correct for his average score? (232)



Testing Yourself

Find the answer for each example on this page.

1.

341	1114	5248	12	15	32	16	$.51
×2	×7	×7	×40	×61	×34	×74	×42

2.

5490				211	$14.36
136			4311	7603	4.59
5152	8722	$74.37	2561	482	.88
+241	+1929	+62.55	+6228	+653	+69.12

3.

$26.53	$9.42	7623	4638	9276	6000
−8.95	−5.73	−492	−2846	−6597	−4362

4. $7\overline{)38}$ $3\overline{)74}$ $8\overline{)409}$ $8\overline{)576}$ $\$.07\overline{)\$4.27}$ $6\overline{)\$2.48}$

5. Find the missing numbers:

$\frac{1}{3}$ of 1 ft. = ? in. $\frac{1}{2}$ of 1 lb. = ? oz. 28 da. = ? wk.

$\frac{1}{6}$ of 1 yr. = ? mo. $\frac{1}{5}$ of 25 in. = ? in. $\frac{1}{4}$ of 1 hr. = ? min.

6 lb. 4 oz. = ? oz. 13 yd. 2 ft. = ? ft. 12 gal. = ? qt.

Solve these problems:

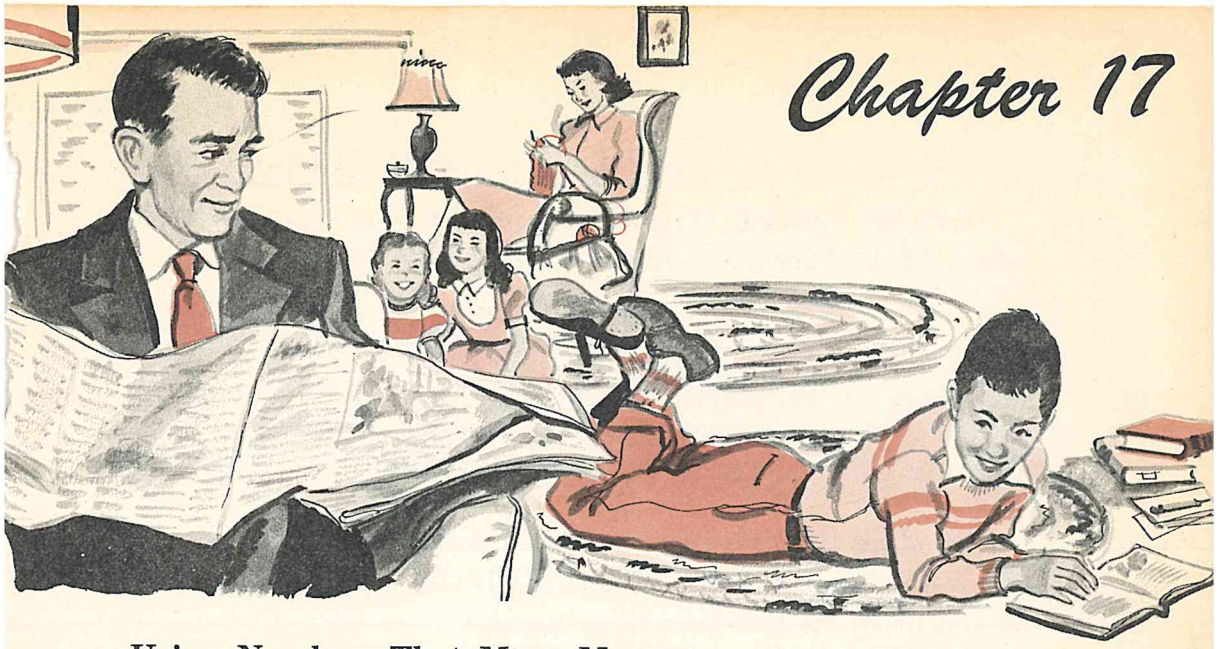
6. Jim sold 8 magazines on Monday, 7 on Tuesday, 9 on Wednesday, and 4 on Thursday. What was the average number of magazines he sold per day?

7. Monday morning the car speedometer read 4050 miles. On Monday the car was driven 589 miles and on Tuesday, 435 miles. What did the speedometer read Tuesday night?

8. Bob delivered 497 newspapers in 7 days. What was the average number of papers he delivered per day?

9. The grocer sold 23 packages of cookies that held 48 cookies each. How many cookies did he sell?

10. Ruth's mother paid $3.00 for 6 pairs of socks. How much did each pair cost?



Chapter 17

Using Numbers That Mean Money

Larry is asking his father about an arithmetic problem.

1. Larry said, "Today the 31 children in our class brought money to pay their bus fare for a trip to the zoo and to pay for their lunch. Each child brought $.65. How much money should we have altogether?"

Larry's father said, "You multiply numbers that stand for money in the same way you multiply other numbers. Then put the dollar sign and the cents point in the product. Can you do that?"

$.65
×31
65
19 5
$20.15

Larry multiplied $.65 by 31 in the same way he would multiply 65 by 31. The product was 2015. Larry knew that the product stood for money. So he put the dollar sign before the product and the cents point before the last two figures in the product. Read the answer.

Find the answer for each problem below.

2. Larry's father said, "I bought 12 gallons of gas today at $.32 a gallon. How much did I pay?"

3. Each of the 28 children in Joan's class bought a notebook that cost $.15. How much did all the notebooks cost?

Learning More about Multiplication

Study the multiplication in each of the four examples just below. Make sure you understand how each is worked.

\$.72	94	43	59
×36	×24	×47	×25
4 32	376	301	295
21 6	188	172	118
\$25.92	2256	2021	1475

In finding the *first partial product* in each example above, *tens* were changed to *hundreds*. That is why each of these first partial products is a *three-place number*.

In each example above, the second partial product is a *four-place number* because *hundreds* were changed to *thousands* in finding it. There are *no ones* in this number. Notice that the ones' place is left blank.

1. Tell how to find the answer for each example above.

Now find the product for each of these examples:

2.	62	83	52	\$.42	84	92	62	63	\$.82
	27	24	48	38	26	39	35	38	25
3.	54	32	63	\$.52	63	72	62	83	\$.53
	23	48	26	49	37	46	36	29	38
4.	56	75	68	\$.86	26	57	88	32	\$.22
	42	25	39	43	46	49	53	59	65
5.	95	56	54	\$.26	77	24	76	53	\$.85
	22	73	96	78	93	89	94	78	25
6.	69	18	37	\$.46	23	35	32	28	\$.37
	22	67	74	83	66	35	75	65	45
7.	96	59	65	\$.88	44	58	57	47	\$.62
	22	34	37	24	48	69	72	47	98

Using Multiplication to Solve Problems

Use what you have learned about multiplication. Solve the problems on this page.

1. Flora's mother bought 12 dozen rolls at 45¢ a dozen for a church supper. How much did she pay for all the rolls?

2. Homer learned that there were 52 weeks in a year. He wants to know how many weeks old he will be on his 11th birthday. What is the answer?

3. Joan's mother bought 24 cans of peaches at 44¢ a can. How much did the 24 cans of peaches cost?

4. Bus tickets for a trip to the museum cost $.45 each. If 43 children plan to take the trip, how much will all of the tickets cost?

5. Laura said, "In the assembly hall at school there are 29 rows of seats with 24 seats in each row. How many seats are there in all?"

6. At a sale a storekeeper sold 80 cans of fruit juice at 19¢ a can. How much money did he get for them?

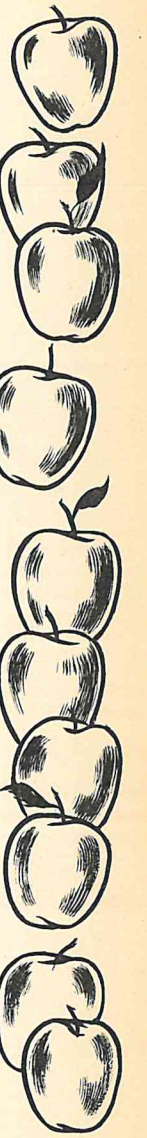
7. John's uncle sold 32 baskets of apples. Each basket held 40 pounds. How many pounds of apples did he sell?

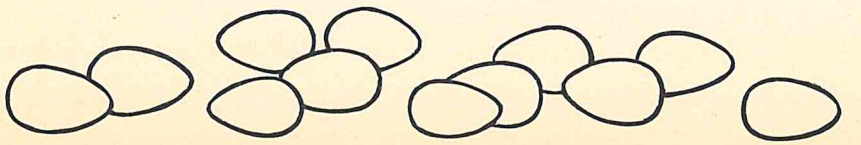
8. A farmer bought 43 bushels of oats from a neighbor. A bushel of oats weighs 32 pounds. How many pounds of oats did the farmer buy?

9. It costs Robert's father $.40 bus fare each day to go to and from work. What is the bus fare for one month if he works 24 days?

10. One week a farmer filled 94 egg cartons. Each carton held a dozen eggs. How many eggs did he use to fill all the cartons?

11. A grocer sold 24 cans of fruit at 39¢ a can. How much did he get for them?





Making Sure of Multiplication

Find the products for the examples in rows 1, 2, 3, and 4 below. Do your work carefully. Then check each answer.

1.	42 × 3	32 × 3	64 × 2	92 × 4	17 × 5	26 × 3	\$.58 × 6	\$.89 × 6
2.	232 × 3	522 × 4	374 × 2	761 × 5	217 × 4	615 × 6	159 × 5	437 × 8
3.	3217 × 3	5224 × 4	1212 × 6	4302 × 8	2378 × 2	9132 × 7	1676 × 5	3489 × 9
4.	1432 × 2	8332 × 3	2913 × 2	5411 × 5	2231 × 4	3141 × 7	2861 × 3	6231 × 6

Now find the products for the examples in rows 5, 6, 7, 8, 9, and 10. Work carefully. Then check your answers.

5.	20 × 40	13 × 20	10 × 52	32 × 32	23 × 42	\$.13 × 63	\$.14 × 72	\$.13 × 14
6.	15 × 16	28 × 32	16 × 26	19 × 55	30 × 26	\$.92 × 14	\$.31 × 39	\$.22 × 45
7.	63 × 17	18 × 18	98 × 15	14 × 59	36 × 29	\$.17 × 48	\$.28 × 36	\$.20 × 64
8.	31 × 93	72 × 51	23 × 63	65 × 31	38 × 92	\$.14 × 87	\$.35 × 82	\$.28 × 72
9.	20 × 99	81 × 28	31 × 84	72 × 44	73 × 63	\$.82 × 64	\$.93 × 53	\$.83 × 62
10.	63 × 25	72 × 47	32 × 45	94 × 23	88 × 53	\$.76 × 94	\$.27 × 49	\$.95 × 53

If you did not get the correct answers for any of the examples above, find out what you did that was incorrect. If you need help, ask your teacher or another pupil.

Problems to Solve

Read each problem carefully and write A, S, M, or D for each step. Then solve the problem.

1. Lila's aunt bought Lila 2 play dresses. Each dress cost $3.60. If she paid for them with a $10.00 bill, how much change did she get?

2. On Monday morning Tom and his father drove 198 miles. In the afternoon they drove 119 miles. Father said, "We shall drive as far tomorrow as we did today." If they do, how many miles will they have driven in two days?

3. Bob needed $45.98 to get a bicycle. He earned $16.35 and got a $10.00 gift. How much more money does he need?

4. Jack earned $1.75 on Friday and $1.25 on Saturday. He spent 98¢ for a movie and for ice cream. How much money did he have left?

5. Joe collected 75 pounds of waste paper one week, 56 pounds the next week, and 115 pounds the third week. What was the average number of pounds he collected per week?

6. John took in 95¢ on Friday and $1.25 on Saturday selling papers at 5¢ each. How many papers did he sell?

7. Dick sold 8 bundles of wastepaper at 40¢ a bundle. He planned to buy baby chicks at 4¢ each. How many could he buy with the money he got for the wastepaper?

8. In 4 days an automobile was driven 25 miles, 96 miles, 30 miles, and 69 miles. What was the average distance the car was driven each day?

9. Jerry's brother works 2 hours each day after school. He is paid 75¢ an hour. How much money will he make in 15 days?

10. Bob bought 2 bicycle tires for $2.24 each, and a new bicycle saddle for $4.79. How much did he spend?

11. Jim had $3.50 and his mother gave him $6.00. He spent $7.49 for shoes. How much money had he left?

Dividing Hundreds and Ones

In each example shown below there are enough *hundreds* to divide. That is why each quotient is a three-place number.

A		B		C	
400	400 r1	301	301 r2	205	205 r3
2)800	2)801	3)903	3)905	4)820	4)823
8	8	9	9	8	8
00	01	03	05	20	23
		3	3	20	20
			2		3

1. Study the examples in pair A. In these examples there are *no tens*. There are *no ones*, or not enough ones to divide.

2. Study pair B. In these examples, ones are divided.

3. This is the way to divide the first example in pair C:

Divide the hundreds: 8 hundreds = 2 hundreds × 4.

Bring down the 2 tens. 2 is less than 4, so write 0 in tens' place in the quotient.

Bring down the 0 in ones' place. Change 2 tens to 20 ones.

Divide the ones. 20 ones = 5 ones × 4.

4. Tell how the second example in each pair is different from the first example in that pair.

5. Explain how to work each example above.

Find the answer for each example below.

1. 2)800	3)600	2)600	7)705	2)801	6)604	3)902
2. 3)609	2)802	4)808	6)606	3)906	4)408	2)406
3. 2)209	3)304	7)708	4)809	2)403	3)607	2)805
4. 4)412	8)864	5)545	6)630	7)742	9)954	3)921
5. 3)322	7)758	5)533	4)835	6)629	8)844	2)613

Dividing Hundreds, Tens, and Ones

1. Study each pair of examples below. Make sure that you understand how each example was worked.

A		B		C	
230	230 r2	121	121 r3	417	417 r1
3)690	3)692	4)484	4)487	2)834	2)835
6	6	4	4	8	8
9	9	8	8	3	3
9	9	8	8	2	2
0	2	4	7	14	15
		4	4	14	14
			3		1

Notice that in the examples in pair A both the *hundreds* and the *tens* were divided. There were *no ones*, or not enough to divide.

Do you see that in the examples in pairs B and C, the *hundreds*, *tens*, and the *ones* were all divided?

After dividing the tens in the examples in pair C, there were *tens left*. These *tens* were changed to *ones*.

In what way is the second example in each pair different from the first example in that pair?

2. Explain how each of the above examples is worked.

Find the answers to the examples in each row:

3.	2)480	4)840	3)390	7)770	2)640	3)960	4)480
4.	4)885	2)261	5)553	3)632	4)441	2)461	3)962
5.	3)693	2)468	4)448	5)555	3)936	2)264	4)484
6.	2)843	3)368	6)667	4)845	2)485	3)697	4)486
7.	2)450	6)696	2)874	5)565	3)642	4)868	3)951
8.	3)643	3)890	5)587	6)679	7)785	2)497	8)898

More about Dividing Three-Place Numbers

In each example shown just below, *hundreds* were *left* after the hundreds were divided. The *hundreds left* were changed to *tens* and added to the tens brought down. Study each example.

A		B		C	
160	160 r3	121	121 r1	245	245 r1
4)640	4)643	8)968	8)969	3)735	3)736
4	4	8	8	6	6
24	24	16	16	13	13
24	24	16	16	12	12
0	3	8	9	15	16
		8	8	15	15
			1		1

1. Tell how to find the answer for each example above.

Find the answer for each example below.

2. $3\overline{)420}$ $5\overline{)800}$ $8\overline{)960}$ $3\overline{)871}$ $4\overline{)723}$ $6\overline{)905}$ $7\overline{)846}$

3. $5\overline{)955}$ $2\overline{)302}$ $7\overline{)917}$ $7\overline{)848}$ $3\overline{)457}$ $4\overline{)967}$ $2\overline{)789}$

4. $8\overline{)992}$ $4\overline{)500}$ $6\overline{)792}$ $4\overline{)993}$ $5\overline{)777}$ $6\overline{)879}$ $3\overline{)434}$

5. $4\overline{)600}$ $5\overline{)853}$ $3\overline{)789}$ $6\overline{)908}$ $5\overline{)660}$ $8\overline{)980}$ $7\overline{)925}$

When you divide numbers that stand for money, think of them as standing for cents. Then divide as you would divide other numbers.

Study the examples at the right. Then work the examples below:

2 15	$1.59
$.03)$6.45	5)$7.95
6	5
4	29
3	25
15	45
15	45

6. $.02)$8.16 $6\overline{)\$9.66}$ $4\overline{)\$4.88}$

Now you have learned:

- You divide *hundreds* in the same way you divide *tens* or *ones*.

Dividing Four-Place Numbers

You should now be able to divide any number by a one-place divisor. You will find that dividing four-place numbers is like dividing two-place and three-place numbers, because dividing thousands is like dividing hundreds, tens, or ones.

Find the answer for each of these examples:

1. $5\overline{)1000}$ $4\overline{)2003}$ $7\overline{)4907}$ $3\overline{)2407}$ $6\overline{)4208}$ $2\overline{)1803}$

2. $6\overline{)3048}$ $9\overline{)2739}$ $8\overline{)3280}$ $5\overline{)1553}$ $7\overline{)2174}$ $4\overline{)1682}$

3. $4\overline{)3692}$ $2\overline{)1479}$ $5\overline{)4700}$ $6\overline{)5345}$ $3\overline{)1711}$ $7\overline{)3734}$

4. $3\overline{)2577}$ $7\overline{)5854}$ $2\overline{)8648}$ $5\overline{)6580}$ $4\overline{)8600}$ $6\overline{)7344}$

5. $8\overline{)9872}$ $7\overline{)9275}$ $6\overline{)7916}$ $7\overline{)8708}$ $2\overline{)8504}$ $5\overline{)6231}$

6. $3\overline{)\$32.75}$ $8\overline{)\$92.66}$ $9\overline{)\$91.85}$ $4\overline{)\$93.62}$ $2\overline{)\$97.44}$

Solve these problems:

7. Mr. Johnson brought 3 loads of baled hay to the market. The total weight of the hay was 8004 pounds. What was the average weight per load?

8. Mr. Roberts sold 8 smaller loads of hay. Their total weight was 8216 pounds. What was the average weight per load?

9. Mr. James sold 2 loads of hay for $76.84. What was the average price per load?

10. Mr. Hansen sold 3 loads of cabbage for $96.60. What was the average price per load that he was paid?

11. John wants to save $12.00 in 6 weeks. Find the average amount he should save per week.

Now you have learned:

- You divide *thousands* in the same way that you divide *hundreds*, *tens*, or *ones*.

Finding the Average

The answer to each problem on this page is the average of several numbers. Find the answer to each problem. If you are not sure how to find averages, review page 232.

1. On a short trip Jane and her father drove 27 miles the first hour, 37 miles the second hour, and 29 miles the third hour. What was the average number of miles per hour?

2. In five days a farmer gathered 110 eggs, 115 eggs, 117 eggs, 105 eggs, and 103 eggs. What was the average number of eggs gathered per day?

3. John weighs 75 pounds, Tom weighs 73 pounds, Mary weighs 69 pounds, Bob weighs 87 pounds, and Alice weighs 66 pounds. What is their average weight?

4. Henry's father drove 312 miles on Sunday, 295 miles on Monday, and 356 miles on Tuesday. What was the average number of miles driven per day?

5. Ray earned money by helping at his father's store. He earned \$3.05 one week, \$2.75 the next week, and \$3.80 the third week. What were his average earnings per week?

6. On the five days of one week Hazel spent 20¢, 27¢, 23¢, 25¢, and 30¢ for school lunches. What was the average amount she spent per day?

7. Last month Harry saved these amounts from his weekly allowance: \$.28, \$.30, \$.26, and \$.36. What was the average amount he saved per week?

8. In one school in Lakeville, there were 320 children. There were 285 in another school, and 349 in a third. What was the average number of children per school?

9. Jim is 58 inches tall, Vicki is 56 inches, Joseph is 60 inches, Joan is 54 inches, and Bob is 57 inches. What is their average height?

Reviewing Division

Find the answer for each example below. Check your answers.

1. $5\overline{)54}$ $2\overline{)86}$ $3\overline{)65}$ $4\overline{)72}$ $6\overline{)95}$ $7\overline{)85}$ $9\overline{)93}$ $8\overline{)58}$

2. $6\overline{)360}$ $9\overline{)810}$ $3\overline{)271}$ $5\overline{)354}$ $8\overline{)567}$ $8\overline{)408}$ $2\overline{)188}$

3. $3\overline{)279}$ $7\overline{)289}$ $6\overline{)547}$ $5\overline{)325}$ $9\overline{)657}$ $7\overline{)504}$ $8\overline{)505}$

4. $9\overline{)848}$ $3\overline{)900}$ $5\overline{)500}$ $2\overline{)801}$ $4\overline{)803}$ $6\overline{)605}$ $4\overline{)408}$

5. $3\overline{)906}$ $9\overline{)909}$ $7\overline{)709}$ $2\overline{)607}$ $8\overline{)856}$ $9\overline{)963}$ $4\overline{)836}$

6. $3\overline{)620}$ $2\overline{)419}$ $3\overline{)690}$ $2\overline{)860}$ $9\overline{)997}$ $3\overline{)932}$ $4\overline{)483}$

7. $4\overline{)848}$ $3\overline{)639}$ $2\overline{)483}$ $5\overline{)559}$ $3\overline{)368}$ $7\overline{)798}$ $2\overline{)650}$

8. $4\overline{)876}$ $3\overline{)947}$ $7\overline{)850}$ $6\overline{)720}$ $4\overline{)960}$ $3\overline{)852}$ $5\overline{)654}$

9. $2\overline{)581}$ $4\overline{)528}$ $7\overline{)987}$ $3\overline{)470}$ $3\overline{)875}$ $5\overline{)759}$ $2\overline{)316}$

10. $6\overline{)6429}$ $3\overline{)9618}$ $5\overline{)5675}$ $4\overline{)9756}$ $2\overline{)7957}$ $7\overline{)8423}$

11. $\$.06\overline{)\$3.00}$ $\$.05\overline{)\$4.52}$ $\$.02\overline{)\$1.68}$ $\$.03\overline{)\$2.17}$

12. $\$.03\overline{)\$6.90}$ $\$.04\overline{)\$8.85}$ $\$.07\overline{)\$9.17}$ $\$.05\overline{)\$7.89}$

13. $9\overline{)\$4.50}$ $8\overline{)\$7.20}$ $7\overline{)\$6.35}$ $6\overline{)\$5.65}$ $9\overline{)\$8.17}$

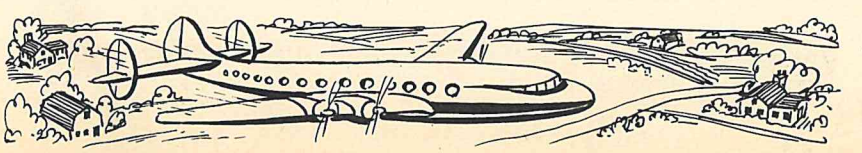
14. $2\overline{)\$7.74}$ $3\overline{)\$8.95}$ $4\overline{)\$9.96}$ $5\overline{)\$8.95}$ $6\overline{)\$9.95}$

Solve these problems:

15. Sue's mother drove 624 miles in 2 days. What was the average distance she drove per day?

16. At the school store, \$3.06 worth of 3¢ pencils were sold in one day. How many of those pencils were sold that day?

17. Ben read about an airplane that flew 600 miles in 2 hours. What was its average speed per hour?



The New School

The new Hawthorne School opened in September. The children were very happy to have a new school building. Open House for parents was held on a Friday so that the children's parents could visit the school.

1. The principal said that he expected to have about 30 children in each classroom. There are 18 classrooms in the building. If his estimate is correct, how many children will there be in the new school?

2. During Open House 317 visitors came on Friday morning, 298 came on Friday afternoon, and 563 on Friday night. What was the total number of visitors during Open House?

3. The school has an assembly hall that seats 600 persons. On Friday night 563 persons were present. How many vacant seats were there in the hall?

4. One of the parents asked about the size of the playground. The children measured it and found that it is 639 feet long. How many yards long is it?

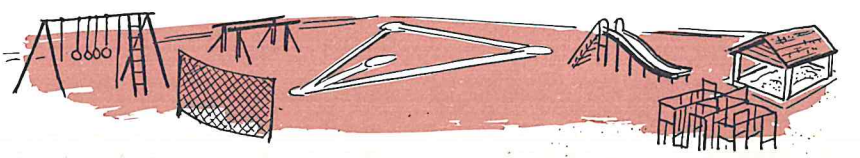
5. Some other children measured the width of the playground. The width is 387 feet. What is the width in yards?

6. How many yards of fence would be needed to build a fence around the whole playground?

7. Two sandboxes for the kindergarten children cover a total of 296 square feet. If each box is the same size, how many square feet does each box cover?

8. In the two kindergarten rooms there are tables and chairs for the children. If 6 children sit around each table, how many tables are needed for 132 children?

9. The sixth-grade children sold 27 copies of a special edition of the school paper for 25¢ a copy. How much money did they receive for the papers they sold?



Problems about Selling

Often when something is sold there is an arithmetic problem to be solved. The problems below are about selling things. For each problem write A, S, M, or D to show whether you should add, subtract, multiply, or divide to solve it. Then find the answer.

1. A farmer sold 8 baskets of tomatoes for $9.60. How much money did he get for each basket?

2. The farmer sold squash for 4¢ a pound. If he received $5.76, how many pounds of squash did he sell?

3. Mr. Thomas received $8.20 for the 4 chickens he sold to his neighbor. What was the average price per chicken?

4. James sold 19 tickets to the school circus at 25¢ each. How much money did he get for all of the tickets?

5. Harold sold some of his foreign stamps for 5¢ each. He received $5.50. How many stamps did he sell?

6. One day a grocer sold 38 baskets of grapes at 42¢ a basket. How much money did he get for all of the grapes?

7. Robert had a garden in his back yard last summer. He raised tomatoes and sold them to the neighbors. He sold 24 baskets of tomatoes at 45¢ a basket. How much money did he receive for them?

8. Robert also raised beets in his garden. He sold 16 bunches at 15¢ a bunch. How much money did he get for them?

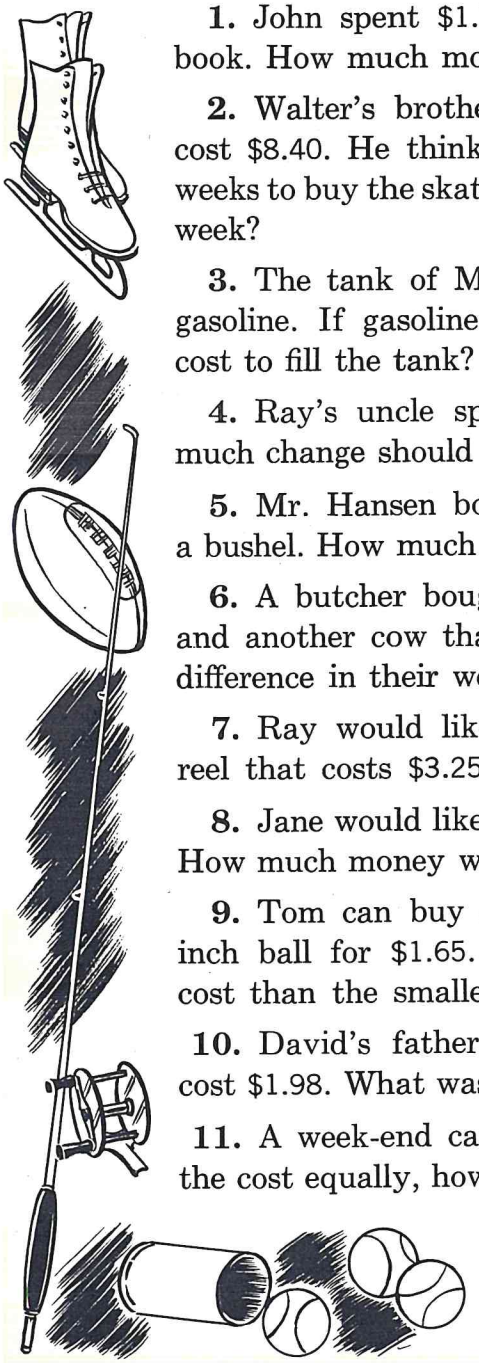
9. How much money did Robert get for both the tomatoes and the beets?

10. How much more money did Robert get for the tomatoes than for the beets?

11. Some of the P.T.A. mothers baked 45 dozen cookies for the Bake Sale. They sold the cookies at 35¢ a dozen. How much did they receive for all the cookies?

Problems about Buying

The problems on this page are about buying things. For each problem write A, S, M, or D to show what you will do to find the answer. Then find the answer to the problem question.



1. John spent \$1.13 for a pair of gloves and \$.95 for a book. How much money did he spend?

2. Walter's brother wants to buy a pair of skates that cost \$8.40. He thinks that he can save enough money in 6 weeks to buy the skates. How much money should he save each week?

3. The tank of Mr. Moore's new car holds 17 gallons of gasoline. If gasoline costs 29¢ a gallon, how much will it cost to fill the tank?

4. Ray's uncle spent \$11.87 for a new golf club. How much change should he get from \$15.00?

5. Mr. Hansen bought 25 bushels of oats that cost \$.89 a bushel. How much did he pay for the oats?

6. A butcher bought one cow that weighed 1217 pounds and another cow that weighed 1198 pounds. What was the difference in their weights?

7. Ray would like a fishing rod that costs \$3.98 and a reel that costs \$3.25. How much would both cost?

8. Jane would like a set of 4 books. Each book costs \$1.29. How much money would the set of books cost?

9. Tom can buy a 14-inch plastic ball for \$.89 or a 20-inch ball for \$1.65. How much more does the larger ball cost than the smaller one?

10. David's father bought a can of 3 tennis balls that cost \$1.98. What was the cost of each ball?

11. A week-end camping trip cost \$9.75. If 3 boys shared the cost equally, how much did each boy pay?

More Problems about Buying

We all need to know arithmetic in order to be good buyers. Each problem below is about buying. Solve each problem.

1. Betty can buy a dart game at a special sale for $1.98. The regular price is $2.50. How much will Betty save if she buys the game at the special price?

2. Mr. Lane bought a shirt at $\frac{1}{2}$ of the regular price. The regular price was $4.00. How much did he pay for the shirt?

3. Tom's mother bought 3 cans of orange juice on sale at 29¢ a can. How much change did she get from $5.00?

4. John's father bought 72 acres of land at $86 an acre. How much did the land cost?

5. Each child in the fourth grade brought 50¢ to help pay the cost of the class picnic. How much money did 33 children bring?

6. Nancy's mother paid $3.60 for 6 dozen eggs. What was the cost per dozen?

7. Mrs. Smith bought 4 pounds of ground beef at 59¢ a pound. How much did she pay for the meat?

8. Christine's sister bought an album of 4 records for $4.12. What was the cost per record?

9. A grocer sold 29 five-pound bags of sugar at 60¢ a bag. How much money did he get for them?

10. Bill's father spent $6.72 for stamps that cost 6¢ each. How many stamps did he buy?

11. Mr. Ward ordered 48 aster plants from a nursery. The price was 39¢ for each plant. The postage was 33¢. How much did he pay altogether?

12. Jerry went to the store to buy oranges for his mother. At 5¢ each, how many oranges could he buy for $1.20?

Problems about Earning and Saving

You should learn to earn money and to save a part of what you earn. The problems on this page deal with earning or saving money. Solve the problems.

1. Tom's brother earns 75¢ an hour for after-school work. He worked 40 hours during December. How much did he earn?

2. Ruth's sister saved $2.25 a week for 8 weeks. Then she spent $8.98 for a dress. How much money did she have left?

3. Bill has $77.15 in his savings account. Jane has $49.98 in her account. How much more money has Bill in his savings account than Jane has in hers?

4. Betty saved these amounts of her allowance in 5 weeks: $.25, $.20, $.30, $.20, and $.30. What was the average amount per week that she saved?

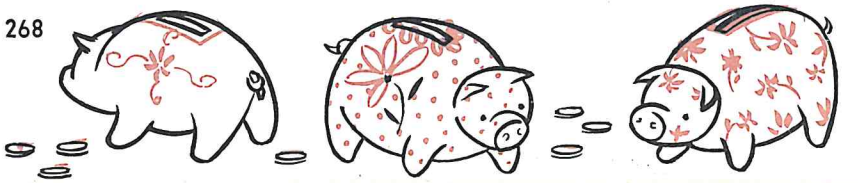
5. Bob helped his brother on a paper route. Bob's share of the pay for the first week was $1.78, for the second week it was $2.15, and for the third week it was $2.10. What was the average amount of Bob's share per week?

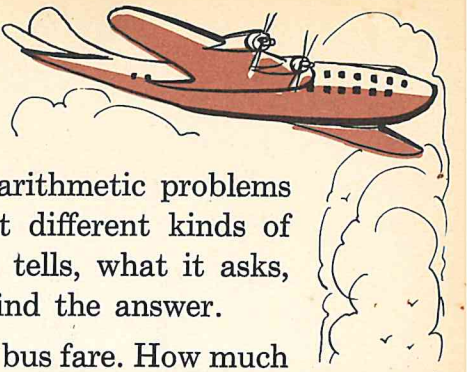
6. Mary's brother earns $.65 an hour working after school. One week he worked 8 hours. How much money did he earn?

7. Ethel's uncle gave her a savings bond that cost $37.50. Ethel will get $50.00 for it in ten years. How much more money will she get for the bond than her uncle paid for it?

8. Lester has been buying 25¢ savings stamps out of his allowance. He has 57 stamps in his folder. He wants to buy a savings bond that costs $18.75. How much more money will he need?

9. Jean's aunt said, "If you save 25¢ a week for 10 weeks I will give you as much money as you have saved." How much money would Jean have then?





Problems about Travel

When people travel, they often have arithmetic problems to solve. The problems below are about different kinds of travel. For each problem decide what it tells, what it asks, and how to answer the question. Then find the answer.

1. Each school day Dick spends 12¢ for bus fare. How much does he spend for bus fare in a school month of 20 days?

2. Ann's father used 68 gallons of gasoline one month. If his car travels 18 miles on a gallon, how many miles did he drive that month?

3. On an automobile trip Frank's father paid a garage man $8.75 for repairs, $1.60 for oil, and $2.29 for gasoline. How much change did he get from $20.00?

4. A teacher and 5 children spent $6.60 on an automobile trip to the city. What was each person's share of the cost?

5. Jane's father drove his car 1461 miles in March, 1795 miles in April, 1587 miles in May, and 1639 miles in June. How many miles did he drive in the four months?

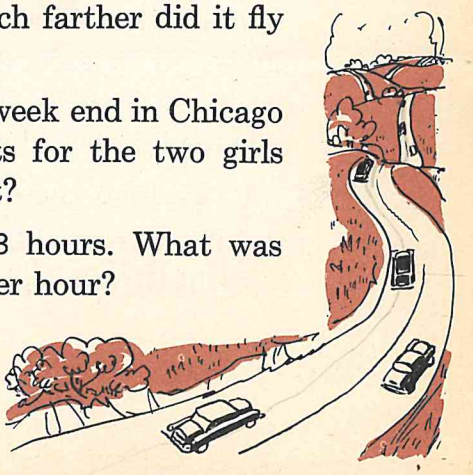
6. Herbert went to spend the summer with his grandparents in the country. The train ticket cost $5.92. At 2¢ a mile, how many miles did he ride?

7. Herbert could have made the trip by bus for $4.65. How much more than that did the train ticket cost?

8. Jane read that an airplane flew 1327 miles on one trip and 1746 miles on another trip. How much farther did it fly on the second trip than on the first trip?

9. Barbara and her twin sister spent a week end in Chicago with an aunt and uncle. Railroad tickets for the two girls cost $8.80. How much did each ticket cost?

10. An airplane traveled 687 miles in 3 hours. What was the average number of miles it traveled per hour?



Review and Practice

Find the answer for each example on this page. Check each answer.

1.

75	94	63	$.06	621	26312	$24.36
30	17	79	.47	3450	1708	9.27
18	56	25	.34	5968	954	8.79
+24	+83	+40	+.29	+872	+9260	+90.00

2.

63	320	700	$8.64	$17.34	3520	53046
−17	−82	−18	−5.87	−8.56	−1735	−2190

3.

6352	$34.25	15	37	86	$.16	$.57
×5	×4	×24	×23	×72	×74	×72

4. $9\overline{)81}$ $3\overline{)90}$ $4\overline{)83}$ $7\overline{)791}$ $3\overline{)675}$ $8\overline{)249}$ $4\overline{)9728}$

5. $2\overline{)89}$ $5\overline{)75}$ $5\overline{)97}$ $7\overline{)287}$ $3\overline{)195}$ $5\overline{)413}$ $6\overline{)8592}$

6. $\$.04\overline{)\$8.48}$ $\$.02\overline{)\$4.89}$ $7\overline{)\$9.87}$ $5\overline{)\$7.59}$

7. $\frac{3}{5}$ of 35 = ? 72 pt. = ? qt. 2 bu. 3 pk. = ? pk.

Solve these problems:

8. Doris and her mother went shopping. They bought 2 books at $.98 each and a fountain pen for $1.35. How much did they pay in all?

9. Judy bought a dozen oranges that cost 48¢, and a dozen eggs for 69¢. How much change should she get from $2.00?

10. In the Wilson School there are 35 children in first grade, 28 in second grade, 31 in third grade, 29 in fourth grade, 36 in fifth grade, and 33 in sixth grade. What is the average number of children per grade?

11. In 1950 there were 9768 persons living in Brownsville and 8797 persons living in Canton. How many more persons lived in Brownsville than in Canton in 1950?

To Help You Remember

The page numbers following the questions and examples tell you where to turn if you need help.

▶ *To think and talk about:*

1. When you multiply 25 × 69, how many partial products do you have? Why is there no figure in the ones' place in the second partial product? How do you get the final product? Why is the first partial product a three-place number? Why is the second partial product a four-place number? (213, 229, 254)

2. Tell what you have to do to find the answer for each of these examples: $2\overline{)401}$, $3\overline{)617}$, $4\overline{)936}$. (258-259)

3. What does the dividend tell in the example for this problem: "If 9 cans of peaches cost \$3.15, what does 1 can cost?" What does the divisor tell? The quotient? (243)

4. You know the number of children in each of 3 rooms. How can you find the average number of children per room? (232)

5. How do you find $\frac{1}{3}$ of a number? $\frac{2}{3}$ of a number? (148)

▶ *To think about and write:*

1. Find the products for these examples: (239, 254)

31	93	52	32	72	62	63	95
46	53	49	75	44	83	37	53

2. Find the quotients: (175, 241, 258, 260, 261)

$2\overline{)89}$ $3\overline{)927}$ $5\overline{)58}$ $7\overline{)287}$ $8\overline{)989}$ $6\overline{)6744}$

3. Find the average for each group of numbers: (232)

100, 95, 111, 98 666, 323, 607, 952 750, 885, 819

4. Find the missing numbers: (163-164)

$\frac{1}{5}$ of 15 = ? $\frac{5}{6}$ of 30 = ? $\frac{2}{5}$ of 15 = ? $\frac{7}{8}$ of 24 = ?

Testing Yourself

Find the answer for each example below.

1.

38	27	81	\$.58	3247	\$17.62	\$6.89
65	48	52	.05	605	9.87	32.60
24	90	67	.97	4730	60.04	.66
+79	+35	+96	+.06	+5098	+93.21	+54.27

2.

55	\$.86	834	501	200	\$9.32	\$60.01	3573
−38	−.77	−65	−127	−8	−.96	−3.42	−2784

3.

2334	9768	\$78.96	28	48	\$.24	56	67
×6	×7	×3	×32	×52	×45	×47	×48

4. $7\overline{)56}$ $7\overline{)70}$ $2\overline{)61}$ $6\overline{)684}$ $4\overline{)467}$ $5\overline{)7055}$ $3\overline{)6396}$

5. $\$.03\overline{)\$6.69}$ $\$.04\overline{)\$8.85}$ $3\overline{)\$8.79}$ $4\overline{)\$6.08}$

6. 8 qt. 3 pt. = ? pt. 96 qt. = ? gal. $\frac{5}{6}$ of 18 = ?

Solve these problems:

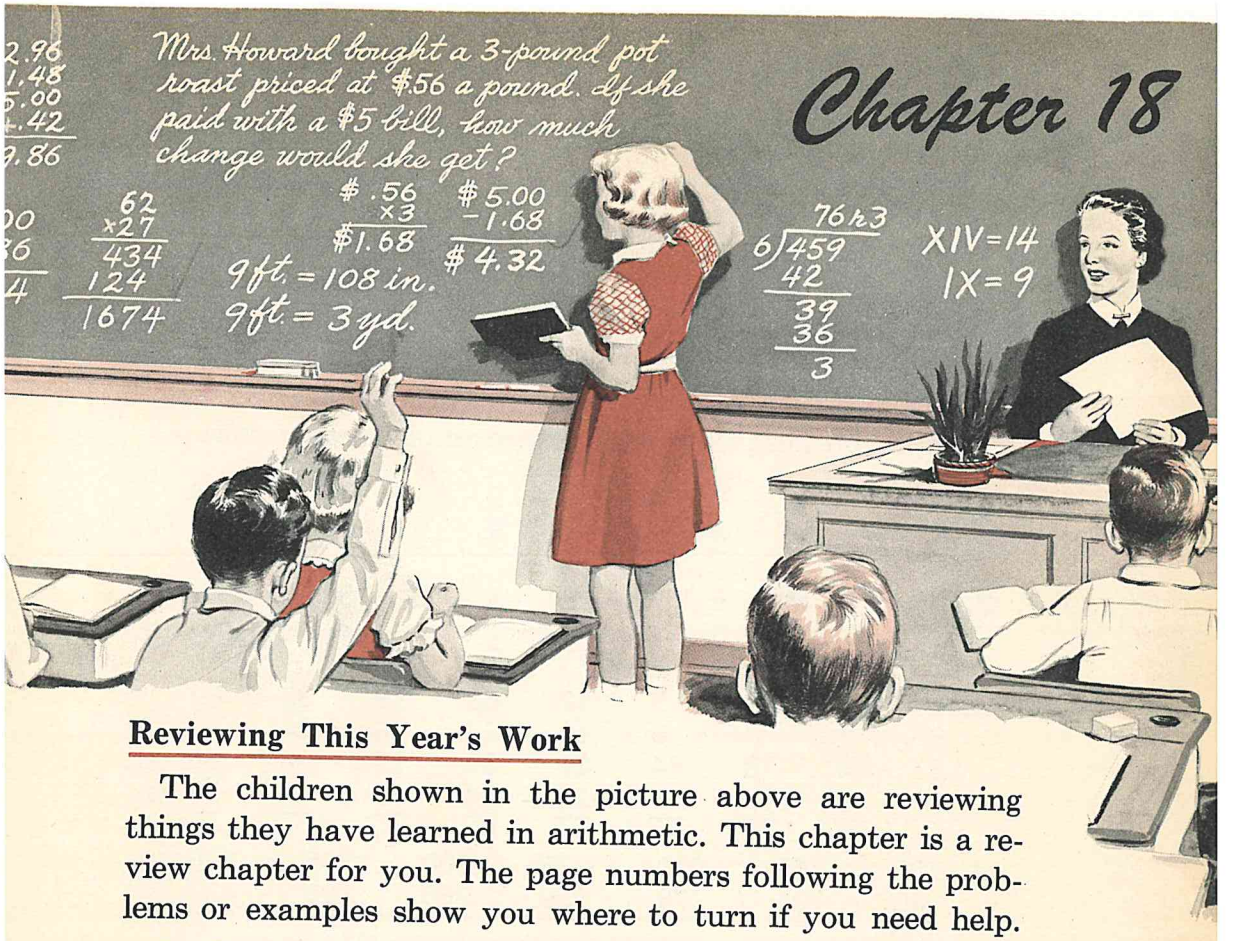
7. A trucker wants to haul 545 bags of cement in 5 loads. How many bags must he haul in each load?

8. A farmer sold 235 dozen eggs in September, 214 dozen in October, 198 dozen in November, and 121 dozen in December. What was the average number of dozens sold per month?

9. Mary's mother bought 12 yards of cloth at 98¢ a yard, some thread for 25¢, and a pair of scissors for \$4.50. How much did she spend?

10. Harvey bought a pound of candy for 60¢ and a pound of salted peanuts for 48¢. How much change should he get from \$1.25?

11. A grocer opened 6 boxes of canned peaches and put the cans of peaches on the shelf. There were 24 cans in each box. At noon 36 of the cans were left. How many had been sold?


Chapter 18
Mrs. Howard bought a 3-pound pot roast priced at $.56 a pound. If she paid with a $5 bill, how much change would she get?
$ .56 ×3 $1.68
$ 5.00 − 1.68 $ 4.32
62 ×27 434 124 1674
9 ft. = 108 in.
9 ft. = 3 yd.
76 r3 6)459 42 39 36 3
XIV = 14
IX = 9

Reviewing This Year's Work

The children shown in the picture above are reviewing things they have learned in arithmetic. This chapter is a review chapter for you. The page numbers following the problems or examples show you where to turn if you need help.

1. Check the work shown in the picture. Is it all correct? If you found a mistake, tell how to correct it.

Solve the problems below.

2. George's father bought 3 new neckties at $1.65 each. How much did he pay for all three of them? (96, 109)

3. George's father gave the clerk $5.00 to pay for the ties. How much change should he have received? (71, 109)

4. Joe bought a ball for $1.19, a bat for $1.75, and a baseball cap for $1.35. How much did he spend? (70, 109)

5. Mrs. Miller paid $5.85 for 3 shirts for Gerald. What was the cost of each shirt? (109, 260)

6. At the school carnival Alice made $2.80 selling popcorn at $.08 a bag. How many bags did she sell? (109, 243)

Reviewing Addition

Find the sums for the addition examples in each row below. Check your answers. Add down to find the sum. Then add up to check. If the answer is the same both times, it is probably the correct answer.

The page number or numbers after each row show you where to turn if you need help with any example in that row.

1.

5	9	8	7	9	8	2	4	5	6	8	
6	7	8	3	3	4	9	6	4	6	6	(14)

2.

2	7	8	5	9	8	3	8	5	5	9	
7	6	2	9	9	7	6	1	8	5	6	(14)

3.

6	70	9	5	42	63	19	33	82	
8	2	3	9	10	22	16	34	20	(24)
5	4	8	84	21	30	13	86	65	(25)
9	3	47	8	23	14	17	44	77	(33)

4.

322	63	940	18	500	745	396	(51)
40	195	78	239	360	823	437	(70)

5.

264	456	130	641	318	903	423	
48	572	283	350	106	427	879	
320	34	101	473	245	618	504	(51)
95	768	374	582	209	130	367	(70)

6.

4010	8001	2487	1234	30110	
905	1050	6391	2345	56302	(143)
340	709	5264	9000	4050	(144)
67	240	3897	41742	879	(190)

7.

$.50	$ .37	$7.85	$3.25	$22.75	
.10	1.50	3.62	14.87	3.96	
.45	2.59	9.00	.92	48.22	(34)
.87	4.75	4.76	16.54	1.85	(143)

8.

$8.75	$67.95	$125.00	$310.79	$259.36	(143)
19.50	38.49	42.75	164.58	451.87	(190)

Reviewing Subtraction

Find the answers for the subtraction examples on this page. Check each answer. First subtract the subtrahend from the minuend to find the difference. To check your answer, add the subtrahend and the difference. If your answer is correct, the sum of these two numbers will be the same as the minuend.

The page number or numbers after each row show you where to turn if you need help with any of the examples in that row.

1.

16	11	15	13	13	10	11	9	18	
7	7	7	8	9	3	4	7	9	(17)

2.

14	16	14	12	13	11	16	10	17	
6	9	8	9	6	6	8	9	8	(17)

3.

49	28	30	62	75	51	86	94	86	(22)
7	8	4	28	46	42	39	68	29	(31)

4.

365	917	481	724	503	100	702	
24	53	65	96	87	32	98	(52)

5.

589	436	673	364	800	702	210	
463	275	148	287	539	326	197	(71)

6.

2623	7669	3628	6325	5376	8720	(143)
512	2846	1352	3970	4129	3842	(144)

7.

7665	9243	8724	4001	3085	5608	
2846	6078	5867	1345	2497	1219	(144)

8.

5802	6507	7000	6002	23104	95603	(144)
3274	2849	4615	3925	5247	13825	(190)

9.

$.78	$.60	$3.25	$5.00	$75.00	$34.21	(34, 52, 71)
.35	.47	.98	2.69	6.87	17.95	(143-144)

10. Find the difference between 27 and 432. (52)

11. Find the difference when the minuend is 4000 and the subtrahend is 1462. (144)

Reviewing Multiplication

Find the products for the examples in each row. Check your answers by multiplying again very carefully.

The page number or numbers after each row of examples show where to turn if you need help with any examples in that row.

1.

4	9	8	4	8	3	7	5	4	6	7	
4	7	9	5	8	9	5	5	3	9	6	(80)

2.

2	4	4	7	8	5	9	7	9	6	8	
6	7	8	2	3	8	5	8	9	5	7	(80)

3.

2	6	7	8	6	4	8	6	9	5	7	
7	6	7	6	4	9	2	7	8	9	9	(80)

4.

13	32	34	16	47	78	56	83	67	(49)
3	4	2	8	5	7	9	6	8	(94)

5.

243	432	120	531	107	518	239
2	3	8	9	6	5	4 (95)

6.

3283	9161	2432	7861	3117	9219
3	5	4	6	3	2 (158)

7.

1416	5608	3246	8042	2469	5324
5	4	3	7	4	9 (158)

8.

22	13	14	18	60	82	24	19 (213, 226)
31	53	14	35	17	19	45	27 (227, 229)

9.

51	22	36	81	53	64	84	57 (230, 239)
91	74	32	47	82	24	72	72 (254)

10.

$.59	$4.50	$2.25	$12.95	$24.76	$.87 (96, 158)
3	5	8	4	9	20 (49, 227)

11. Find the product of 5 times 284. (95)

12. Find the product when the multiplicand is 64 and the multiplier is 53. (254)

Reviewing Division

Find the answers for the division examples on this page. Check your work. To check the answer for a division example, multiply the divisor by the quotient. This product should be the same as the dividend. If there is a remainder in the answer, it must be added to the product.

The page number or numbers after each row of examples show where to find help with examples in that row.

1. $3\overline{)15}$ $6\overline{)30}$ $5\overline{)45}$ $5\overline{)20}$ $4\overline{)32}$ $7\overline{)21}$ $4\overline{)28}$ (63)

2. $8\overline{)48}$ $9\overline{)54}$ $7\overline{)42}$ $6\overline{)36}$ $6\overline{)48}$ $6\overline{)42}$ $6\overline{)54}$ (81)

3. $8\overline{)56}$ $7\overline{)63}$ $7\overline{)35}$ $7\overline{)49}$ $9\overline{)63}$ $7\overline{)56}$ $7\overline{)42}$ (82)

4. $8\overline{)64}$ $9\overline{)81}$ $8\overline{)72}$ $9\overline{)72}$ $8\overline{)56}$ $9\overline{)63}$ $9\overline{)54}$ (83)

5. $2\overline{)20}$ $3\overline{)36}$ $2\overline{)86}$ $2\overline{)48}$ $3\overline{)90}$ $3\overline{)93}$ $4\overline{)84}$ (173, 175)

6. $5\overline{)70}$ $4\overline{)60}$ $6\overline{)72}$ $4\overline{)96}$ $3\overline{)84}$ $4\overline{)56}$ $7\overline{)98}$ (182)

7. $6\overline{)37}$ $9\overline{)83}$ $2\overline{)61}$ $4\overline{)49}$ $3\overline{)85}$ $6\overline{)99}$ (87, 175, 182)

8. $3\overline{)150}$ $7\overline{)149}$ $6\overline{)426}$ $4\overline{)257}$ $5\overline{)368}$ $2\overline{)195}$ (240-242)

9. $4\overline{)805}$ $3\overline{)627}$ $2\overline{)469}$ $5\overline{)570}$ $3\overline{)943}$ $6\overline{)675}$ (258-259)

10. $7\overline{)980}$ $6\overline{)784}$ $5\overline{)605}$ $3\overline{)844}$ $8\overline{)992}$ $4\overline{)758}$ (260)

11. $2\overline{)1000}$ $6\overline{)2460}$ $3\overline{)4290}$ $7\overline{)4263}$ $9\overline{)4530}$ (261)

12. $\$.05\overline{)\$.85}$ $\$.06\overline{)\$2.45}$ $\$.07\overline{)\$4.55}$ $\$.09\overline{)\$8.30}$ (183, 243)

13. $2\overline{)\$.65}$ $4\overline{)\$.72}$ $6\overline{)\$1.80}$ $5\overline{)\$3.69}$ $8\overline{)\$7.00}$ (184, 243)

14. $\$.03\overline{)\$9.65}$ $7\overline{)\$7.99}$ $\$.06\overline{)\$8.46}$ $2\overline{)\$9.50}$ (260)

15. $\frac{1}{2}$ of 12 = ? $\frac{1}{3}$ of 12 = ? $\frac{2}{3}$ of 12 = ? (148)

16. $\frac{1}{4}$ of 12 = ? $\frac{1}{4}$ of 16 = ? $\frac{3}{4}$ of 16 = ? (149)

17. $\frac{5}{6}$ of 18 = ? $\frac{3}{8}$ of 16 = ? $\frac{2}{5}$ of 15 = ? (164)

Reviewing Units of Measure

You have learned that time is measured in minutes, hours, days, weeks, months, and years (40, 104); that liquids are measured in cups, pints, quarts, and gallons (41); that dry materials are measured in pints, quarts, pecks, and bushels (68); that temperature is measured in degrees (36); that distance is measured in inches, feet, and yards (38); and that weight is measured in ounces and pounds (61).

The numbers in the paragraph above tell the pages to which you can turn for help in doing the work on this page.

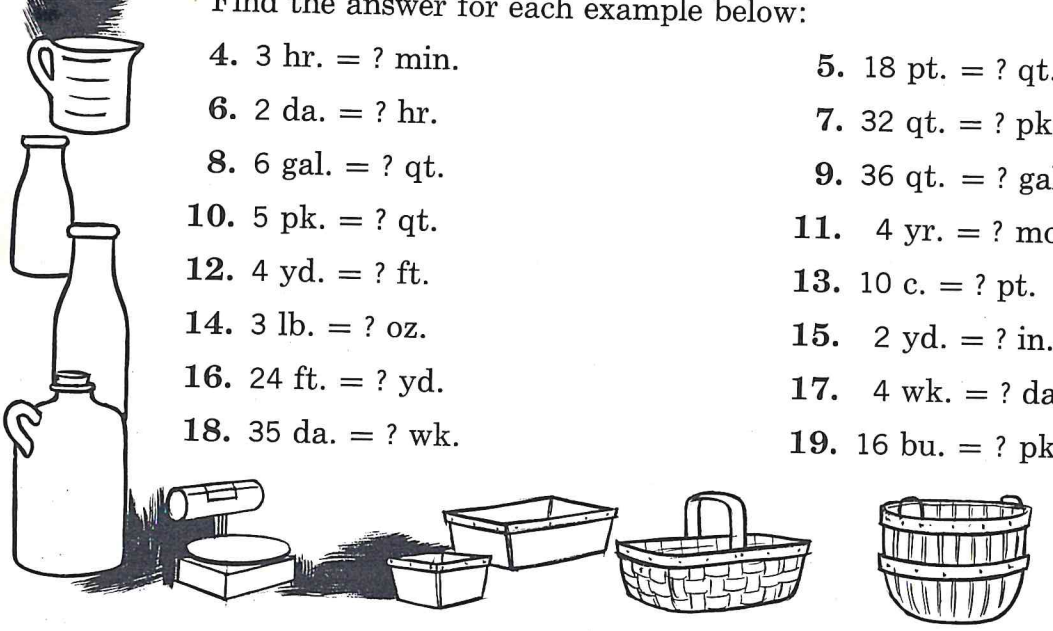
Answer these questions:

1. Would you use minutes to measure the length of a day?
2. Does a farmer sell strawberries by the bushel?
3. Would you use inches to measure the width of the floor of your classroom?

Sometimes you need to change larger units of measure to smaller units, such as feet to inches. You know that you multiply to do this. (237) You also know that when you need to change smaller units of measure to larger units, such as pints to quarts, you divide. (246)

Find the answer for each example below:

4. 3 hr. = ? min.
5. 18 pt. = ? qt.
6. 2 da. = ? hr.
7. 32 qt. = ? pk.
8. 6 gal. = ? qt.
9. 36 qt. = ? gal.
10. 5 pk. = ? qt.
11. 4 yr. = ? mo.
12. 4 yd. = ? ft.
13. 10 c. = ? pt.
14. 3 lb. = ? oz.
15. 2 yd. = ? in.
16. 24 ft. = ? yd.
17. 4 wk. = ? da.
18. 35 da. = ? wk.
19. 16 bu. = ? pk.



Things to Talk About

Answer the questions below. The class may talk about them, to make sure everyone understands the answers. The page numbers show where to turn if you need help.

1. Why is 2568 called a four-place number? How do you read it? (7) Read it as the money number, $25.68. (9) Read it as the telephone number, Daly 2568. (8) Read it as the house number, 2568 North Street. (8)

2. How can you find the answer to an addition fact if you forget it? (14) If you forget a subtraction fact, how would you find the answer? (17)

3. How is temperature measured? At what temperature does water boil? At what temperature does it freeze? (36)

4. If you forget a multiplication fact, how can you find the answer? (46) How do the multiplication facts help you to find the answers to division facts? (62-63)

5. If you buy a notebook and pencil for 19¢ and give the storekeeper a dollar, what should he do and say when he gives you the change? (69)

6. What is each figure in each of the following fractions called: $\frac{1}{4}$, $\frac{3}{8}$, $\frac{2}{3}$, $\frac{5}{6}$? What does each fraction tell us? (100)

7. Explain what a two-step problem is. (110)

8. When would you use a timetable? (132)

9. $\frac{1}{3}$ of 12 = 4. What is each number in this example called? (148)

10. Explain how to work each example below. Perhaps you can show the class how it is done. (242-243, 260)

$.05\overline{)\$4.68}$ $\quad$ $7\overline{)\$5.97}$ $\quad$ $4\overline{)\$5.37}$ $\quad$ $.06\overline{)\$8.73}$

11. In each example above, what does the dividend tell you? The divisor? The quotient? The remainder? (243)

Helps in Problem Solving

The question a problem asks helps you decide what you should do to solve the problem. (50, 67)

A problem that asks you to find *how many in all* is an *addition* problem. (13)

A problem may ask you to find how many more, how many fewer, how much less, how many gone, or how many in the other group. These are different ways of asking you to *find the difference* by using *subtraction* to solve the problem. (16, 18)

A problem that asks you to find *how many in all of the equal groups* is a *multiplication* problem. (45)

A problem that asks you to find *how many equal groups* or *how many in each equal group* is a *division* problem. (64)

After you have read a problem carefully, think:

- What does the problem tell me?
- What does the question ask me to find?
- Is it a two-step problem?
- Should I add, subtract, multiply, or divide?

Then find the answer. Check it by deciding:

Is the answer reasonable? Did I do the work accurately?

Now solve these problems:

1. John's mother bought him a shirt for \$1.87 and a pair of shoes for \$4.75. How much did she pay in all?

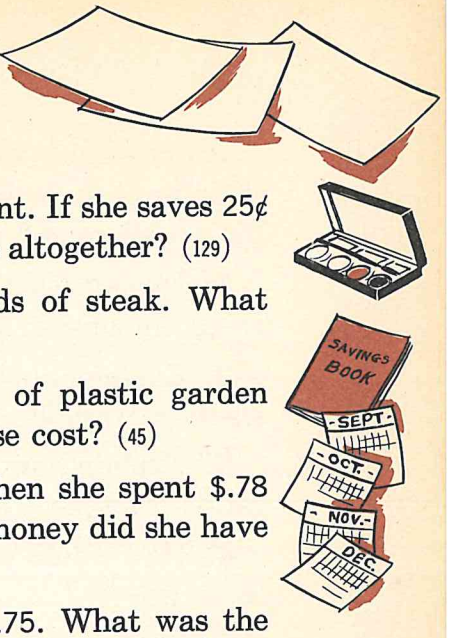
2. Harry had \$2.00. He bought a book for \$1.20. How much money did he have left?

3. What would 3 records cost at \$1.75 each?

4. Mr. Dale bought \$7.50 worth of 6¢ stamps. How many stamps did he get?

5. Jane bought 2 yards of cloth at 79¢ a yard and a yard of ribbon for 29¢. How much did she pay altogether?

Reviewing Problem Solving



Solve each problem on this page.

1. Mary has $23.80 in her savings account. If she saves 25¢ a week for 8 weeks, how much will she have altogether? (129)

2. Mrs. Becker paid $3.21 for 3 pounds of steak. What was the price per pound? (66)

3. Fred's father wants to buy 50 feet of plastic garden hose. At 12¢ a foot, how much will the hose cost? (45)

4. Betty had $1.75 and earned $.90. Then she spent $.78 for paints and drawing paper. How much money did she have left? (110)

5. John's father bought 3 shirts for $9.75. What was the cost of each shirt? (66)

6. If John's father paid for the shirts with a $20 bill, how much change should he receive? (16)

7. Myrtle's mother is 5 ft. 8 in. tall. Myrtle is 53 in. tall. What is the difference between their heights? (126)

8. Bill's savings book showed that he had saved $1.85 in September, $.79 in October, $1.30 in November, and $.95 in December. How much had he saved in the four months? (13)

9. Judy bought 4 yards of cloth at 59¢ a yard. How much change did she get from $3.00? (126)

10. The cost of a trip was $3.76. If 4 boys share the cost equally, how much should each boy pay? (66)

11. Ruth helped her father pull carrots and tie them into bunches. They tied 36 bunches before noon and 44 bunches in the afternoon. Her father sold them at 9¢ a bunch. How much money did he get for the carrots? (160)

12. A farmer set out 8 rows of small apple trees with 12 trees in each row. How much did the trees cost at $.75 each? (161)

More to Talk About

Perhaps your teacher will want you to discuss these questions in class or in smaller groups. The page numbers after the questions tell you where to turn if you need help.

1. Explain to the class or to your group how you would check the answer for an addition example. (24, 274)

2. Explain how you would check the answer for a subtraction example. (22, 275)

3. Explain how you would check the answer for a multiplication example. (48, 276)

4. How would you check the answer for a division example? (82, 88, 277)

5. Explain how to find the perimeter of a rectangle or a square. (162) The area. (192)

6. What is the difference between a circle, a square, a rectangle, and a triangle? (131) Name some things that are the shape of a circle; a square; a triangle; a rectangle.

7. What kind of a question does an addition problem ask? (13, 280)

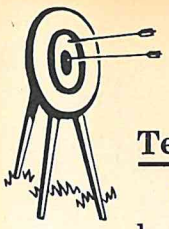
8. What kinds of questions do subtraction problems ask? (16, 18, 280)

9. What question does a multiplication problem ask? (47, 280)

10. What two kinds of questions do division problems ask? (64, 66, 176, 280)

11. Tell how you would write each of these numbers as Roman numerals: 2, 4, 6, 9, 13, 23, 49, 83, 90. Be ready to write one of the numbers on the board. (118-119, 181)

12. What units of measure do you think each of these people would use in their work: carpenter, milkman, farmer, bus driver, railroad engineer, airline pilot?



Testing Yourself–Examples

Find the answer for each example on this page. Work quickly, but take time to be sure that each answer is correct.

Add:

1.

a	b	c	d	e	f	g
327	504	984	437	659	$3.79	$9.87
192	348	265	722	438	2.84	6.95

2.

29	65	497	680	2496	$37.42	$40.45
86	38	84	221	384	86.31	86.28
72	87	96	372	4275	14.75	37.91
58	49	307	99	36	8.47	50.70

Subtract:

3.

175	507	719	934	5200	$71.24	$97.00
57	228	348	675	3741	24.18	36.25

Multiply:

4.

94	64	62	37	56	25	$.75	$.62	$.65
5	7	37	74	24	63	5	19	37

5.

256	548	269	408	725	$6.25	$5.98
8	4	7	4	8	6	7

Divide:

6. $3\overline{)15}$ $9\overline{)54}$ $6\overline{)36}$ $8\overline{)48}$ $7\overline{)42}$ $8\overline{)72}$ $4\overline{)24}$ $5\overline{)45}$

7. $4\overline{)10}$ $9\overline{)21}$ $3\overline{)26}$ $7\overline{)52}$ $9\overline{)87}$ $5\overline{)47}$ $4\overline{)48}$ $3\overline{)68}$

8. a $2\overline{)124}$ b $6\overline{)366}$ c $7\overline{)364}$ d $4\overline{)227}$ e $8\overline{)856}$ f $6\overline{)778}$ g $9\overline{)981}$

9. a $3\overline{)\$.63}$ b $8\overline{)\$.84}$ c $\$.05\overline{)\$2.75}$ d $6\overline{)\$6.85}$ e $8\overline{)\$9.92}$

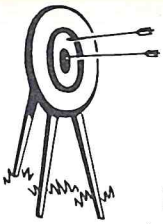
Copy and write the missing numbers:

10. $\frac{1}{6}$ of 12 ft. = ? ft.

11. $\frac{5}{8}$ of 16 oz. = ? oz.

12. $\frac{3}{4}$ of 20 min. = ? min.

13. $\frac{2}{3}$ of 15 gal. = ? gal.



Testing Yourself–Problems

Solve each problem on this page. Work quickly, but take time to make sure that each answer is correct.

1. When Mr. Brown started on a trip, the speedometer on his car read 2862 miles. When he returned home it read 3438 miles. How far did he drive?

2. On the trip Mr. Brown bought 32 gallons of gasoline at 31¢ a gallon. How much did he pay for gasoline?

3. At one service station Mr. Brown bought $3.51 worth of gasoline and a quart of oil for $.46. How much change should he receive from a $10 bill?

4. On the trip Mr. Brown spent $9.92 for gasoline, $.46 for oil, $4.85 for meals, $3.50 for a hotel room, and $1.75 to have a tire repaired. How much did the trip cost?

5. Susan's mother paid $1.62 for 6 cans of orange juice. What was the cost per can?

6. The fourth-grade class took a trip to the zoo. The cost for each child was 27¢ carfare and 8¢ for a bottle of milk at lunch time. If 24 children went on the trip, what was the total cost?

7. Ted, Paul, and Jerry went to the circus. They agreed to share the expenses equally. Ted spent $1.30, Paul spent $1.20, and Jerry spent $1.25. What was each boy's share?

8. Martha went to the store for her mother and bought 6 cans of peaches at 46¢ a can. How much change will she get from a $5 bill?

9. Mrs. Barton bought 2 dolls at a special sale. If she paid $9.96 for both of them, what did each doll cost?

10. Herbert sent an order to a mail-order house for a softball at $1.09 and 2 bats at $.89 each. The postage was $.24. What was the total cost including the postage?

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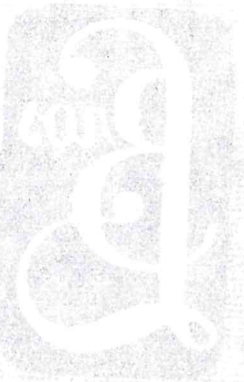

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